DLP TV

Chassis : L64C(N_ATSC)_Hurricane-2
Basic Model : HLR4266WX/XAA (HL-R4266W)
Model : SP46L6HNX/XAX (SP-46L6HN)

SERVICE Manual

DLP TV

SP-46L6HN

FEATURES

- HD Built in TV
- NTSC/ATSC Tuner Embedded
- AV network system (Anynet)
- Digital Audio output (OPTICAL) jack
- Firmware upgrade by USB Port

This Service Manual is a property of Samsung Electronics Co.,Ltd.
Any unauthorized use of Manual can be punished under applicable
International and/or domestic law.

© Samsung Electronics Co., Ltd. **Feb. 2006**
Printed in Korea
AA82-03358A

Table of Contents

Chapter 1 Precaution

■ 1-1 Safety Precautions 1-1
■ 1-2 Servicing Precautions 1-3
■ 1-3 Static Electricity Precautions 1-4
■ 1-4 Installation Precautions 1-5

Chapter 2 Product Specification

■ 2-1 Product Features 2-1
■ 2-2 Key Features 2-2
■ 2-3 Specifications Analysis 2-4
■ 2-4 Accessories 2-5

Chapter 3 Alignment & Adjustment

■ 3-1 Service Instruction 3-1
■ 3-2 How to Access Service Mode 3-2
■ 3-3 Factory Data 3-3
■ 3-4 Service Adjustment 3-13
■ 3-5 Software Upgrade 3-16
■ 3-6 Replacements & Calibration 3-17

Chapter 4 Exploded View & Part List

■ 4-1 SP46L6HNX/XAX 4-1

Chapter 5 Electrical Part List

■ 5-1 SP46L6HNX/XAX Service Item 5-1

Chapter 6 Troubleshooting

■ 6-1 Checkpoints by Error Mode 6-1
■ 6-2 Troubleshooting Procedures by Error Modes 6-7
■ 6-3 Troubleshooting Procedures by ASS'Y 6-9

Chapter 7 Block Diagram

■ 7-1 Overall Block Diagram 7-1
■ 7-2 Partial Block Diagram 7-2

Chapter 8 Wiring Diagram

- 8-1 Overall Wiring 8-1
- 8-2 Connection between Analog and Digital Board 8-2

Chapter 9 PCB Diagram

- 9-1 Power Board 9-1
- 9-2 Digital Board 9-3
- 9-3 Analog Board 9-6
- 9-4 DMD Board 9-9

Chapter 10 Schematic Diagram

- 10-1 Analog Board 10-1
- 10-2 Digital Board 10-10
- 10-3 DMD Board 10-28
- 10-4 Actuator Board 10-35
- 10-5 Ballast 10-36
- 10-6 Power Board 10-37
- 10-7 Combined Bridge and Control Module 10-38
- 10-8 Detect 10-39
- 10-9 Side-AV 10-40
- 10-10 Key Control 10-40
- 10-11 RMC-LED 10-40

1. Precaution

To avoid possible damages or electric shocks or exposure to radiation, follow the instructions below with regard to safety, installation, service and ESD.

1-1 Safety Precautions

1. Make sure all protective devices are properly installed including non-metallic handles and compartment covers when installing or re-installing the chassis or chassis assemblies.

2. Make sure that no gaps exist between the cabinets for children to insert their fingers in to prevent children from receiving electric shocks.

   Errors may occur when the resistance is below 1.0 ㏁ or over 5.2 ㏁.
   In these cases, make sure that the device is repaired before sending it back to the customer.

3. Check for Electricity Leakage (Figure 1-1)
   Warning: Do not use an insulated transformer for checking the leakage. Use only those current leakage testers or mirroring systems that comply with ANSIC 101.1 and the Underwriter Laboratory's specifications (UL1410, 59.7).

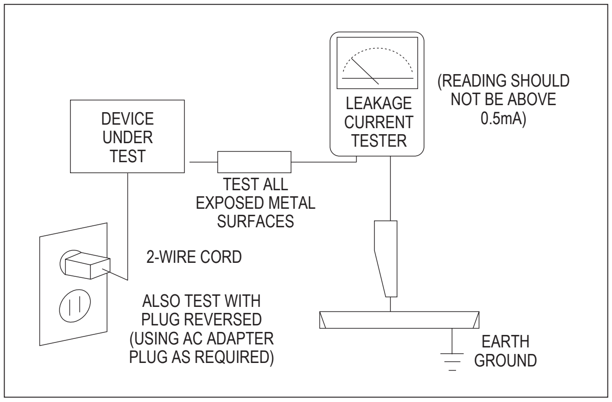

DEVICE UNDER TEST
LEAKAGE CURRENT TESTER
(READING SHOULD NOT BE ABOVE 0.5mA)
TEST ALL EXPOSED METAL SURFACES
2-WIRE CORD
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUG AS REQUIRED)
EARTH GROUND

Fig. 1-1 AC Leakage Test

4. A high voltage is maintained within the specified limits using safety parts, calibration and tolerances. When voltage exceeds the specified limits, check each special part.

5. Warning for Engineering Changes:
   Never make any changes or additions to the circuit design or the internal part for this product.
   Ex: Do not add any audio or video accessory connectors. This might cause physical damage.
   Furthermore, any changes or additions to the original design/engineering will invalidate the warranty.

6. Warning - Hot Chassis:
   Some TV chassis are directly connected to one end of the AC power cord for electrical reasons.
   Without insulated transformers, the product can only be repaired safely when the chassis is connected to the earthed end of the AC power source.

   To make sure the AC power cord is properly connected, follow the instructions below. Use the voltmeter to measure the voltage between the chassis and the earthed ground. If the measurement is over 1.0V, unplug the AC power cord and change the polarity before re-inserting it. Measure the voltage between the chassis and the ground again.

7. Some TV chassis are shipped with an additional secondary grounding system. The secondary system is adjacent to the AC power line. These two grounding systems are separated in the circuit using an unbreakable/unchangeable insulation material.

8. When any parts, material or wiring appear overheated or damaged, replace them with new regular ones immediately. When any damage or overheating is detected, correct this immediately and make a regular check of possible errors.

9. Check for the original shape of the lead, especially that of the antenna wiring, any sharp edges, the AC power and the high voltage power. Carefully check if the wiring is too tight, incorrectly placed or loose. Never change the space between the part and the printed circuit board. Check the AC power cord for possible damages. Keep the part or the lead away from any heat-emitting materials.

10. Safety Indication:
    Some electrical circuits or device related materials require special attention to their safety features, which cannot be viewed by the naked eye. If an original part is replaced with another irregular one, the safety or protective features will be lost even if the new one has a higher voltage or more watts.

    Critical safety parts should be bracketed with (⚡ ⚠). Use only regular parts for replacements (in particular, flame resistance and dielectric strength specifications). Irregular parts or materials may cause electric shock or fire.

11. Pay additional attention to the current leakage as the voltage between the power board and the ballast is 220 to 440v, i.e. very high.
    And also beware of possible electric shock from the primary power source.

1-2 Servicing Precautions

Warning 1: First carefully read the "Safety Instruction" in this service manual.
When there is a conflict between the service and the safety instructions, follow the safety instruction at all times.

Warning 2: Any electrolytic capacitor with the wrong polarity will explode.

1. The service instructions are printed on the cabinet, and should be followed by any service personnel.

2. Make sure to unplug the AC power cord from the power source before starting any repairs.
   (a) Remove or re-install parts or assemblies.
   (b) Disconnect the electric plug or connector, if any.
   (c) Connect the test part in parallel with the electrolytic capacitor.

3. Some parts are placed at a higher position than the printed board. Insulated tubes or tapes are used for this purpose. The internal wiring is clamped using buckles to avoid contact with heat emitting parts. These parts are installed back to their original position.

4. After the repair, make sure to check if the screws, parts or cables are properly installed. Make sure no damage is caused to the repaired part and its surroundings.

5. Check for insulation between the blade of the AC plug and that of any conductive materials (i.e. the metal panel, input terminal, earphone jack, etc).

6. Insulation Check Process: Unplug the power cord from the AC source and turn the switch on. Connect the insulating resistance meter (500v) to the AC plug blade.

   The insulating resistance between the blade of the AC plug and that of the conductive material should be more than 1 ㏁.

7. Any B+ interlock should not be damaged.
   If the metal heat sink is not properly installed, no connection to the AC power should be made.

8. Make sure the grounding lead of the tester is connected to the chassis ground before connecting to the positive lead. The ground lead of the tester should be removed last.

9. Beware of risks of any current leakage coming into contact with the high-capacity capacitor.

10. The sharp edges of the metal material may cause physical damage, so ensure wearing protective gloves during the repair.

1-3 Static Electricity Precautions

1. Some semi-conductive ("solid state") devices are vulnerable to static electricity. These devices are known as ESD. ESD includes the integrated circuit and the field effect transistor. To avoid any materials damage from electrostatic shock, follow the instructions described below.

2. Remove any static electricity from your body by connecting the earth ground before handling any semi-conductive parts or ass'ys. Alternatively, wear a dischargeable wrist-belt.
(Make sure to remove any static electricity before connecting the power source - this is a safety instruction for avoiding electric shock)

3. Remove the ESD ass'y and place it on a conductive surface such as aluminum foil to prevent accumulating static electricity.

4. Do not use any Freon-based chemicals.
Such chemicals will generate static electricity that causes damage to the ESD.

5. Use only grounded-tip irons for soldering purposes.

6. Use only anti-static solder removal devices.
Most solder removal devices do not support an anti-static feature. A solder removal device without an anti-static feature can store enough static electricity to cause damage to the ESD.

7. Do not remove the ESD from the protective box until the replacement is ready. Most ESD replacements are covered with lead, which will cause a short to the entire unit due to the conductive foam, aluminum foil or other conductive materials.

8. Remove the protective material from the ESD replacement lead immediately after connecting it to the chassis or circuit ass'y.

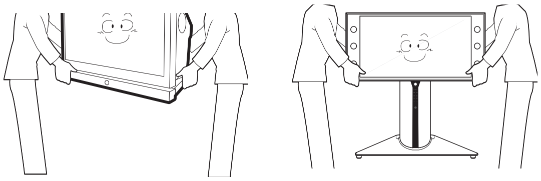
9. Take extreme caution in handling any uncovered ESD replacements. Actions such as brushing clothes or lifting your leg from the carpet floor can generate enough static electricity to damage the ESD.

CAUTION

These servicing instructions are for use by qualified service personnel only.
To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

1-4 Installation Precautions

1. For safety reasons, more than two people are required for carrying the product.



2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.

3. When installing the product, make sure to keep it away from the wall (more than 10cm/4 inches) for ventilation purposes.
   Poor ventilation may cause an increase in the internal temperature of the product, resulting in a shortened component life and degraded performance.

4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.

5. Make sure to turn the power off and unplug the power cord from the outlet before repositioning the product. Also check the antenna cable or the external connectors if they are fully unplugged. Damage to the cord may cause fire or electric shock.

6. Keep the antenna far away from any high-voltage cables and install it firmly. Contact with the high-voltage cable or the antenna falling over may cause fire or electric shock.

7. When connecting the RF antenna, check for a DTV receiving system and install a separate DTV reception antenna for areas with no DTV signal.

8. Check the basics of the screen test.
   - Image position/size, Tilt adjustment, Actuator activation

MEMO

2. Product Specification

2-1 Product Features

Block	Specfication	Major IC	Remark
DMD	- Panel Resolution : 1280 x 720 (Diamond Pixel)	HD4 DMD Panel(L620 Engine)	
RF	- Integrated HDTV Tuner (NTSC/ATSC TUNER Embedded)	ATI T313	
Power	- Input Voltage : AC110V - Stand-By : under 30W	Stand-by (KA1M0565)	
Video	- DNIe3- NTSC, ATSC- HDM	ADV7401, ATI X226B	
Sound	- Speaker : 15W x 2 - Dolby Digital	MSP4440	
Cabinet	- L3 Design		

■ Chip Description

- ATI x226B : Xilleon 226 is the most advanced and highly integrated component for digital set-top boxes, information appliances, and televisions. Xilleon 226 provides dual-stream high-definition decode and display, an assortment of peripheral device controllers, and an embedded microprocessor.
- ADV7401 : The ADV7401 is an integrated video decoder that automatically indicates and converts High Definition or Standard Definition analog baseband television signal into a 4:2:2 component digital video data stream compatible with 20/16-bit or 10/8-Bit CCIR601/CCIR656 outputs for standard definition & SMPTE293M/296M/274M & ITU-R.BT1358 for High definition. All RGB graphics signals are output as 30-bit 4:4:4 RGB or 20-bit 4:2:2 YCrCb.
- MSP4440 : The MSP 44x0G family of single-chip Multistandard Sound Processors covers the sound processing of all analog TV-Standards worldwide, as well as the NICAM digital sound standards.

2-2 Key Features

Model	SP-42L6HN	SP-46L6HN	SP-50L6HN
Voltage	AC 110-120V~	AC 110-120V~	AC 110-120V~
Frequency of Operation	60Hz	60Hz	60Hz
Power Consumption	230 watts	230 watts	230 watts
Dimensions (W x D x H)	39.33 x 13.03 x 30.53 inches 999 x 331 x 755.5 mm	43.07 x 13.35 x 32.05 inches 1094 x 339 x 814 mm	46.54 x 14.13 x 34.25 inches 1182 x 359 x 870 mm
Weight	28 Kg / 61.72 lbs	32.5 Kg / 71.65 lbs	36 Kg / 79.37 lbs

■ H/W Configuration
- DMD Panel : 0.55" (1280 x 720p, TI)
- 1 Optical Engine for the Panel : Slim and Cost-effective
- Color Wheel : R/G/B Color Implementation
- Lamp : 100W (10,000 hours) → Dynamic Mode 120W Drive (6,000 hours)
- Support HDMI Interface : Adopts DVI/HDMI systems for digital HDs including STB.
- DNIe3 : High quality image implementation
- AnyNet Feature : An enhanced interface for various external devices
- USB Interface : Use the USB interface for service purposes (S/W Upgrade)

■ S/W Configuration
- MCU : Built-in 300 MHz MIPS X226B CPU
- 4-Layered Architecture : Device Driver/OS/Hardware Abstraction/Application
- OSD : 32Bit True Color Graphics OSD
- Enhanced system stability by separating the DTV control and the application control systems into multi-processes.

■ Picture
- DMD Panel
  - ⋆ Panel Size : 0.55"
  - ⋆ Panel Resolution : 1280 x 720 (Diamond Pixel)
- Tuner : Integrated HDTV Tuner (NTSC/ATSC TUNER Embbeded)
- Display Format : 1280 x 720 (Diamond Pixel)

■ Sound
- Sound System : Dolby Digital
- Amp/Channel : 2 Channel Digital Amp
- Speaker System & Output(RMS)
  - ⋆ Main L/R : 15W + 15W
  - ⋆ Sound (RMS) : 15W + 15W

■ In/Out Terminals
- Side : 1 CVBS In, 1 S-VHS In
- Rear : 2 RF In, 2 CVBS In, 2 S-VHS In, 2 Component In,
  1 HDMI In(DVI Comportable With Adaptive Jack Only), 1 Anynet port, 1 Optical audio

■ Feature
- Component Interface (480i/480p/720p/1080i, Y/Pb/Pr)
- Digital Interface : HDMI
- Language : English/French/Spanish
- Picture Size : 4:3/16:9/Zoom1/Zoom2/Panorama
- V-CHIP
- Closed Caption
- Sleep Timer : 180 Min.
- Anynet Interface
- Optical sound output

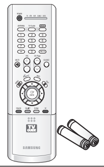
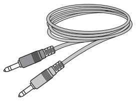
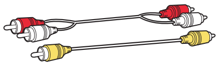
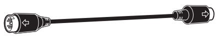
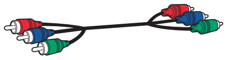
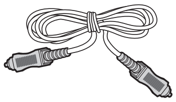
■ Remocon
- TM76

■ Power Supply
- 110V

2-3 Specifications Analysis

Model		SP-42L6HN	SP-46L6HN	SP-50L6HN	HL-R5087W	HL-R6156W	HL-R4266W
Design							
Picture	Display Device	DLP	DLP	DLP	DLP	DLP	DLP
	Built-in Tuner	ATSC, NTSC	ATSC, NTSC	ATSC, NTSC	ATSC, NTSC	ATSC, NTSC	ATSC, NTSC
	Display Format	1080i, 720p, 480p, 480i	1080i, 720p, 480p, 480i	1080i, 720p, 480p, 480i	1080i, 720p, 480p, 480i	1080i, 720p, 480p, 480i	1080i, 720p, 480p, 480i
	Screen Size	42 inch	46 inch	50 inch	50 inch	56 inch	42 inch
	Aspect ratio	16:9	16:9	16:9	16:9	16:9	16:09
	Progressive scan	Yes	Yes	Yes	Yes	Yes	Yes
	Digital Comb Filter	4H Comb	4H Comb	4H Comb	3D Comb	4H Comb	4H Comb
	First Surface Mirror	Yes	Yes	Yes	Yes	Yes	Yes
	Brightness	750cd/㎡	750cd/㎡	750cd/㎡	800cd/㎡	750cd/㎡	750cd/§³
	Contrast	1500:1	1500:1	1500:1	2500:1	1500:1	1500:1
	Color Wheel Size/Bearing	7segment/65 ¢ , Air Bearing	7segment/65 ¢ , Air Bearing	7segment/65 ¢ , Air Bearing	7segment/65 ¢ , Air Bearing	7segment/65 ¢ , Air Bearing	7segment/65¥õ Air Bearing
	Anti-glare Sun Screen	Yes	Yes	Yes	Yes	Yes	Yes
	Screen Pitch	0.098mm	0.098mm	0.098mm	0.098mm	0.098mm	0.098mm
	Image enhancer	DNIe3	DNIe3	DNIe3	DNIe3	DNIe3	DNie3
Audio	Base/Tremble/Balance	No	No	No	No	No	No
	Equalizer	5 Band	5 Band	5 Band	5 Band	5 Band	5 Band
	Auto Volume Leveler	Yes	Yes	Yes	Yes	Yes	Yes
	Surround Sound	DNSE Dolby Digital	DNSE Dolby Digital	DNSE Dolby Digital	TruSurround XT Dolby Digital	DNSE Dolby Digital	DNSE Dolby Digital
	Speaker system	2 Way 4 Speaker	2 Way 4 Speaker	2 Way 4 Speaker	2 Way 4 Speaker	2 Way 4 Speaker	2 Way 4 Speaker
	Output Power	15Wx2	15Wx2	15Wx2	15Wx2	15Wx2	15Wx2
Features	2-Tuner Split-Screen PIP	No	No	No	Yes(HD/SD)	No	Yes(HD/SD)
	Split-screen Side-by-Side	No	No	No	Yes	No	Yes
	MTS with dbx Noise Reduction/SAP	Yes	Yes	Yes	Yes	Yes	Yes
	Still Picture	Yes	Yes	Yes	Yes	Yes	Yes
Connections	Plug & Play	Yes	Yes	Yes	Yes	Yes	Yes
	EPG	No	No	No	Gemstar EPG	No	No
	Anynet	Yes	Yes	Yes	Yes	Yes	Yes
	S-Video In	Rear 2/Side 1	Rear 2/Side 1	Rear 2/Side 1	Rear 2	Rear 2	Rear 2/Side 1
	HDTV Component Video Input (Y, Pb, Pr) 1080i/480P/480i	Rear 2	Rear 2	Rear 2	Rear 2	Rear 2	Rear 2
	PC	No	No	No	No	No	No
	HDMI	Yes	Yes	Yes	Yes	Yes	Yes
	Digital Sound	Optical 1	Optical 1	Optical 1	Optical 1	Optical 1	Optical 1

2-4 Accessories

Accessories		Item	Item code	Remark
Supplied Accessories		Remocon Alkaline Battery	BP59-00084B 4301-000103	Samsung Service center
		Manual	BP68-00524A	
		ANYNET cable	BN39-00518B	
Accessories that can be purchased additionally		Video Cable / Audio Cable	-	Internal shopping mall
		Antenna Cable	-	
		Component Cable	-	
		Optical Cable	-	

MEMO

3. Alignment & Adjustment

3-1 Service Instruction

■ Check items listed after changing each

Check Items Replaced Items	S/W Version	Front LED	Index Delay	Actuator Gain	V-Position H-Position	CCA	Board LED	Tilt Focus
Digital Board	●(1st)		●(3rd)	●(5th)	●(2nd)	●(4th)		
Analog Board		●					●	
Power Board		●					●	
Optical Engine		●	●(3rd)	●(5th)	●(2nd)	●(4th)		●(1st)
DMD Board				●				●
Lamp		●				●		
Color Wheel						●		
Front LED Assy		●						
Actuator Subdetector Board		●						

※ If you change digital board and optical engine, check in order.
(For example, in case of "D/B", first 'S/W', second 'V/H position' and third 'Index'...)

1. Software version check :
   After Entering the Service mode, Check the list below
   * S/W Notation
   "T_HUR3AUS5_4002" indicates "HURRICANE3 BASIC MODEL USA, ver. 4002".

T_HUR3AUS0_XXXX
200X_XX_XX
T-HURUCOM5-XXXX
T-HUR3AUS1_XXXX

2. Front LED check : See page 6-11.

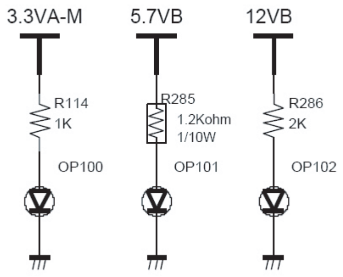
3. Index Delay adjustment : See page 3-13.

4. Actuator Gain adjustment : See page 3-15.

5. Vertical / Horizontal Position adjustment : See page 3-13.

6. CCA : See page 3-14.

7. Board LED check : Check all the LED are turned on.



Power Check Indicator LED

8. Tilt/Focus adjustment : See page 3-17.

3-2 How to Access Service Mode

1. Turn off the power to put the unit into the STAND-BY mode.

2. In order to enter the Service Mode, Press "Mute" → "1” → "8" → "2" → "POWER" button on the Remote Control.
In case entry into SERVICE MODE is unsuccessful, repeat the procedures above.

3. Initial DISPLAY State in times of Service Mode Switch overs

```
DDP1011(L6)
DNIe
ADV7401(M)
ADV7401(S)
uPD64083
MSP4440
CCA(ON)
Cinema CCA
SP Actuator
ESP
CHECKSUM      0000
OPTION
SERVICE

T_HUR3AUS0_XXXX
200X_XX_XX
T-HURUCOM5-XXXX
T-HUR3AUS1_XXXX
```

4. Buttons operations within Service Mode

MENU	Full Menu Display / Move to Parent Menu
Direction keys ▲ / ▼	Item Selection by Moving the Cursor
Direction keys ◀ / ▶	Data Increase/Decrease for the Selected Item
Source	Cycles through the active input source that are connected to the unit

3-3 Factory Data

★ The underlined are items applied during the service adjustment. None of the others should be adjusted.

1. DDP1011

No	Item	Range	Default	Remark
1	V-Position	0-60	36	Screen upper and lower adjustment
2	H-Position	0~120	60	Screen left and right adjustments
3	LAMP SYNC		Pulse(P)	Pulse(P), Pass(T)
4	INDEX DELAY	0~359	40	Synchronizes the base position of the color wheel with the corresponding color signal. This is critical to the natural color display. If the index delay is not properly set, even the correct CCA cordinates will not help when displaying natural colors.
5	SEQ SELECT	0~15	5	Sequence Selection
6	V-FLIP	Normal/Flip	Normal	Vertica Flip Operation
7	H-FLIP	Normal/Flip	Normal	Horizontal Flip Operation
8	GAMMA	0 ~ 15	2	Gamma Table Selection
9	SLR	OFF/ON	OFF	SLR Funcion On/Off
10	DMD_BIAS	B,C,D,E	E	DMD Bias pin voltage selection
11	Lamp Boost	0~63	20	Lamp Boost value selection
12	Lamp Sync Delay	0~4095	0	Lamp Sync delay value selection
13	Engine Select		SAMSUNG	SAMSUNG and ZEISS Selection
14	Lamp Watt		120W	120W/132W Selection
15	Lamp Select		Philips	Philips/Osram/Ushio
16	Test Pattern		0	This displays the built-in pattern of the DDP1011 chip. DDP1011 drives the DMD panel, so displaying this pattern means there is no error in the DDP1011 projection function and the panel itself.

2. DNIe

No	Item	Range	Default	Remark
1	Test Pattern		0	Test Pattern Selection
2	NR_MAX Y/C	0~255	48	Temporal NR Gain
3	NR_MIN Y/C	0~255	16	Temporal NR Gain
4	Core	0~15	4	NEOnDCE User Set Up
5	B_RATIO		12000	Low level information for the minimum value
6	BLACK_TILT	0~255	120	Black Stretch Area
7	W_RATIO		12000	High level information for the minimum value
8	WHITE_TILT	0~255	200	White Stretch Area
9	GAIN1X	0~63	30	Gain of horizontal high frequency region
10	GAIN1Y	0~63	20	Gain of vertical high frequency region
11	GAIN2X	0~63	17	Gain of horizontal middle frequency region
12	GAIN2Y	0~63	13	Gain of vertical middle frequency region
13	GAIN3X	0~63	11	Gain of horizontal low frequency region
14	NDON		ON	ON,OFF Background Noise Detection ON/OFF Switch
15	CORING_ON		ON	ON,OFFCoring On/Off
16	SCALE_R	0~255	160	Log Mapping Gain
17	WTE_CSC		YCCRGB	YCCRGB,YPPRGB
18	DITHER_MOD		0	1,2,3
19	RED_C_COEFF		128	Gain adjustment of the contrast for the Red signal
20	GRN_C_COEFF		128	Gain adjustment of the contrast for the Green signal
21	BLU_C_COEFF		128	Gain adjustment of the contrast for the Blue signal
22	RED_B_COEFF		128	Gain adjustment of the brightness for the Red signal
23	GRN_B_COEFF		128	Gain adjustment of the brightness for the Green signal
24	BLU_B_COEFF		128	Gain adjustment of the brightness for the Blue signal
25	Sub Contrast	0~150	120	Brightness adjustment for the high-light parts of the screen
26	Sub Brightness		230	Brightness adjustment for the low-light parts of the screen
27	ALPMAU/L	0~255	50	

3. ADV7401(M)

No	Item	Range	Default	Remark
1	AUTO COLOR			Auto Color function execution
2	SOG_SYNC_LEV			Embedded Sync Trigger Level
3	AGC_TIM			AGC Time Constant Selection
4	GAIN_MAN			ON,OFF Manual Gain Control Enable
5	A_GAIN			Manual Gain Value for Channel A
6	B_GAIN			Manual Gain Value for Channel B
7	C_GAIN			Manual Gain Value for Channel C
8	A_OFFSET			Channel A Offset
9	B_OFFSET			Channel B Offset
10	C_OFFSET			Channel C Offset
11	YPM	0~7	4	Y Peaking Filter Mode
12	YSFM	0~32	1	Y Shaping Filter Mode
13	WYSFM	0~32	19	Wide Band TY Shaping Filter Mode
14	CSFM		0	C Shaping Filter Mode
15	Contrast	0~255	128	Contrast Adjust
16	Brightness	0~255	128	Brightness Adjust
17	Hue	0~255	128	Hue Adjust
18	CKILLTHR	0~7	3	Colour Kill Threshold
19	SD_OFF_Cb	0~255	128	SD Offset Cb Channel
20	SD_OFF_Cr	0~255	128	SD Offset Cr Channel
21	SD_SAT_Cb	0~255	128	Saturation Cb Channel
22	SD_SAT_Cr	0~255	128	Saturation Cr Channel
23	IFFILTSEL	0~7	3	IF Filter Select
24	LTA	0~3	0	Luma Timing Adjust
25	CTA	0~7	2	Chroma Timing Adjust
26	DNR_TH1	0~255	0	DNR Noise Threshold
27	DCT	0~3	0	Digital Clamp Timing
28	LAGC	0~7	0	Luma Automatic Gain Control
29	LAGT	0~3	3	Luma Automatic Gain Timing
30	LMG		1144	Luma Manual Gain
31	CAGC	0~7	5	Chroma Automatic Gain Control
32	CAGT	0~3	3	Chroma Automatic Gain Timing
33	CMG		2458	Chroma Manual Gain
34	CTI_AB_EN		ON	ON,OFF Chroma Transient Improvement Alpha Blend Enable
35	CTI_AB	0~3	3	Chroma Transient Improvement Alpha Blend

No	Item	Range	Default	Remark
36	CTI_C_TH	0~255	8	CTI Chroma Threshold
37	NSFSEL	0~3	0	Split Filter Selection NTSC
38	CTAPSN	0~3	2	Chroma Comb Taps NTSC
39	CCMN	0~7	0	Chroma Comb mode NTSC
40	YCMN	0~7	0	
41	HSSLICE			
42	VSSLICE			
43	DLL_PH			
44	ST_NOISE		OxFFFF	
45	ALIAS_FILTER_EN			
46	DNR_TH2		4	

4. ADV7401(S)

No	Item	Range	Default	Remark
1	AUTO COLOR			Auto Color function execution
2	SOG_SYNC_LEV	0~31	11	Embedded Sync Trigger Level
3	AGC_TIM	0~7	0	AGC Time Constant Selection
4	GAIN_MAN		ON	ON,OFF Manual Gain Control Enable
5	A_GAIN	0~1024	275	Manual Gain Value for Channel A
6	B_GAIN	0~1024	287	Manual Gain Value for Channel B
7	C_GAIN	0~1024	287	Manual Gain Value for Channel C
8	A_OFFSET	0~1024	0	Channel A Offset
9	B_OFFSET	0~1024	512	Channel B Offset
10	C_OFFSET	0~1024	512	Channel C Offset
11	YPM	0~7	4	Y Peaking Filter Mode
12	YSFM	0~32	1	Y Shaping Filter Mode
13	WYSFM	0~32	19	Wide Band TY Shaping Filter Mode
14	CSFM	(0~7)	0	C Shaping Filter Mode
15	Contrast	0~255	128	Contrast Adjust
16	Brightness	0~255	126	Brightness Adjust
17	Hue	0~255	128	Hue Adjust
18	CKILLTHR	0~7	3	Colour Kill Threshold
19	SD_OFF_Cb	0~255	128	SD Offset Cb Channel
20	SD_OFF_Cr	0~255	128	SD Offset Cr Channel
21	SD_SAT_Cb	0~255	128	Saturation Cb Channel
22	SD_SAT_Cr	0~255	128	Saturation Cr Channel
23	IFFILTSEL	0~7	3	IF Filter Select
24	LTA	0~3	0	Luma Timing Adjust
25	CTA	0~7	3	Chroma Timing Adjust
26	DNR_TH	0~255	0	DNR Noise Threshold
27	DCT	0~3	0	Digital Clamp Timing
28	LAGC	0~7	0	Luma Automatic Gain Control
29	LAGT	0~3	3	Luma Automatic Gain Timing
30	LMG	0~4096	1064	Luma Manual Gain
31	CAGC	0~7(0~3)	2	Chroma Automatic Gain Control
32	CAGT	0~3	3	Chroma Automatic Gain Timing
33	CMG	0~4096	2458	Chroma Manual Gain
34	CTI_AB_EN		ON	ON,OFF Chroma Transient Improvement Alpha Blend Enable
35	CTI_AB	0~3	3	Chroma Transient Improvement Alpha Blend

No	Item	Range	Default	Remark
36	CTI_C_TH	0~255	8	CTI Chroma Threshold
37	NSFSEL	0~3	0	Split Filter Selection NTSC
38	CTAPSN	0~3	2	Chroma Comb Taps NTSC
39	CCMN	0~7	0	Chroma Comb mode NTSC
40	YCMIN	0~7	0	
41	HSSLICE	0~3	1	
42	VSSLICE	0~3	3	
43	DLL_PH			
44	ST_NOISE		OxFFFF	

5. Upd64083

No	Item	Range	Default	Remark
1	DYCOR	0 ~ 15	2	DY detection coring level
2	DYGAIN	0 ~ 15	9	DY detection gain
3	DCCOR	0 ~ 15	3	DC detection coring level
4	DCGAIN	0 ~ 15	6	DC detection gain
5	YHCOR	0 ~ 3	1	Y output high frequency component coring
6	CDELAY	0 ~ 3	4	C signal output delay
7	YPFT		3	YPFT adjustment
8	YPFG		8	YPFG adjustment

6. MSP4440

No	Item	Range	Default	Remark
1	MDB Effect	0~127	56	Micronas Dynamic Bass
2	SRS Dialog	0~127	64	SRS Dialog clarity adjustment
3	PLL			Pilot low adjustment
4	PLH			Pilot high adjustment

7. CCA(ON)

No	Item	Range	Default	Remark
1	CCA	On/Off	On	CCA On/Off Selection
2	Red-x	0~32768	640	Red-x adjustment
3	Red-y	0~32768	340	Red-y adjustment
4	Red-Y	0~32768	86	Red-Y adjustment
5	Green-x	0~32768	300	Green-x adjustment
6	Green-y	0~32768	620	Green-y adjustment
7	Green-Y	0~32768	300	Green-Y adjustment
8	Blue-x	0~32768	150	Blue-x adjustment
9	Blue-y	0~32768	60	Blue-y adjustment
10	Blue-Y	0~32768	53	Blue-Y adjustment
11	White-x	0~32768	291	White-x adjustment
12	White-y	0~32768	300	White-y adjustment
13	White-Y	0~32768	439	White-Y adjustment
14	WB Spread			Spread CCA value to all mode
15	Move HDMI			Move to the HDMI Mode
16	DRedX			Target Red X value for CCA
17	DRedY			Target Red Y value for CCA
18	DGreenX			Target Green X value for CCA
19	DGreenY			Target Green Y value for CCA
20	DBlueX			Target Blue X value for CCA
21	DBlueY			Target Blue Y value for CCA
22	DCyanX			Target Cyan X value for CCA
23	DCyanY			Target Cyan Y value for CCA
24	DMagentaX			Target Magenta X value for CCA
25	DMagentaY			Target Magenta Y value for CCA
26	DYellowX			Target Yellow X value for CCA
27	DYellowY			Target Yellow Y value for CCA
28	D_White_X			Target White X value for CCA
29	D_White_Y			Target White Y value for CCA
30	ATV/AV/SV			

8. Cinema CCA

No	Item	Range	Default	Remark
1	DRedX		640	Target Red X value for CCA
2	DRedY		340	Target Red Y value for CCA
3	DGreenX		300	Target Green X value for CCA
4	DGreenY		620	Target Green Y value for CCA
5	DBlueX		150	Target Blue X value for CCA
6	DBlueY		60	Target Blue Y value for CCA
7	DCyanX		205	Target Cyan X value for CCA
8	DCyanY		270	Target Cyan Y value for CCA
9	DMagentaX		290	Target Magenta X value for CCA
10	DMagentaY		140	Target Magenta Y value for CCA
11	DYellowX		425	Target Yellow X value for CCA
12	DYellowY		515	Target Yellow Y value for CCA
13	D-White-X		313	Target White X value for CCA
14	D-White-Y		329	Target White Y value for CCA

9. SP Actuator

No	Item	Range	Default	Remark
1	Actuator Gain	0~175	115	Actuator Gain adjustment
2	Actuator On/Off		On	Actuator On/Off selection

10. ESP

No	Item	Range	Default	Remark
1	Dynamic Con		Off	Dynamic Contrast On/Off
2	Dynamic Strength		Medium	Low/Mid/Mas
3	Dynamic Con Gain	0~100	0	Dynamic Contrast Gain Adjustment
4	Dynamic Sat		Off	Dynamic Saturation On/Off
5	Dynamic Sat Gain	0~255	176	Dynamic Saturation Gain Adjustment
6	Sharp Picture		Off	Sharp Picture On/Off
7	Sharp Filter		HD Low	HD High/HD Low/SD Image
8	Sharp Picture Gain	0~255	176	Sharp Picture Gain Adjustment

11. CHECKSUM 0000

Excute Checksum calcuation

12. OPTION

No	Item	Range	Default	Remark
1	Lamp Clear			Initialize lamp usage time. Lamp Life is set to zero
2	User Reset			All setting is back to the default
3	WB Reset		OFF	Initialize the White Balance value
4	EER Reset			Clear the EEPROM
5	Lamp Life		0h	Lamp on time counter
6	AUTO POWER	ON/OFF	ON	The sets turns on automatically when the power cord is plugged in
7	DNle DEMO	ON/OFF	ON	DNle Demo function selection
8	Lamp Control		Dynamic	Dynamic, Always
9	MUTE TIME		600ms	Time which the screen will be black while switching channels
10	EDID WRITE			
11	DELAY MOD	ON/OFF	OFF	Sound Delay Module ON/OFF selection
12	DBG/ANY SEL	Debug/AnyNet		Select the use of the Anynet jack
13	GEM/GEMIR SEL	GemIR/Gemstar		Not used
14	226 TEST PATT			Xilleon 226 test pattern
15	Set Default Data			Initialize Service Data
16	DDC protection		OFF	DDC write ON/OFF selection
17	LNA Default		AUTO	LNA setting OFF/Auto selection
18	PROTECT		ON	Protection ON/OFF selection
19	WATCH DOG			Watch Dog ON/OFF selection
20	WD COUNT		0	Count for Watch Dog event
21	Auto Pgm Range		8	Not used
22	DIGITAL→DMD			Transfer engine adjustment data from digital to DMD
23	DMD→DIGITAL			Transfer engine adjustment data from DMD to digital

13. SERVICE

No	Item	Range	Default	Remark
1	V-Position	0 ~ 60	30	Screen upper and lower adjustment
2	H-Position	0 ~ 120	60	Screen left right adjustment
3	LAMP SYNC	Pulse/Pass	Pulse	
4	Actuator Gain		105	Actuator Gain adjustment
5	INDEX DELAY	0 ~ 1023	166	Index delay adjustment
6	AUTO COLOR		OFF	Auto Color function execution
7	CCA			CCA menu
8	Lamp Clear			Initialize Lamp usage time
9	User Reset			All setting is back to the default
10	Engine Select		SAMSUNG	SAMSUNG and ZEISS Selection
11	Lamp Watt		120W	120W/132W Selection
12	Lamp Select		Philips	Philips/Osram/Ushio

3-4 Service Adjustment

3-4-1 Vertical / Horizontal Position Adjustment

1. Turn off the power to put the unit into the STAND-BY mode.

2. In order to enter the Service Mode, Press "Mute" → "1" → "8" → "2" → "POWER" button on the Remote Control.

3. Select "Service" on the first display of the Service mode menu.

4. Select the V-position for vertical positioning and H-position for horizontal positioning by using the ▲▼ (up, down) buttons.

※ Do not set the V-position value to 34 or 35. (Setting to these values will cause horizontal lines on the right side of the screen.)

3-4-2 INDEX DELAY Adjustment

1. Turn off the power to put the unit into the STAND-BY mode.

2. In order to enter the Service Mode, Press "Mute" → "1" → "8" → "2" → "POWER" button on the Remote Control.

3. Select "Service" on the first display of the Service mode menu.

4. Press the ▲▼ (Up or Down) button to move to INDEX DELAY, then press ENTER to select.

5. The INDEX DELAY setup screen (with a red bar at the bottom of the screen) will be displayed.

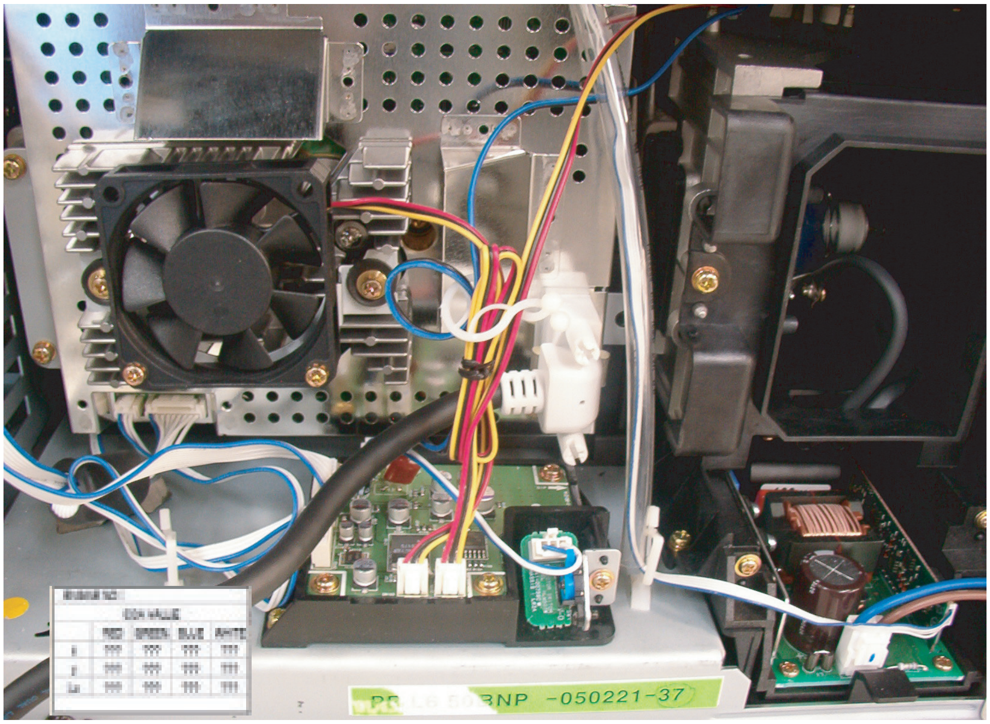
6. Press the ◀▶ (Left of Right) button to check the red color at the bottom of the screen at its minimum and maximum values of changing from red to magenta, then adjust to the mean value.

3-4-3 CCA Adjustment Service Methods : CCA Adjustment is needed after changing a light engine or digital board

■ CCA : In DLP TV, even the same RGB color may differ depending on the light engine. CCA (Color Coordinate Adjustment) corrects the color to achieve the color accuracy. CCA performs color correction after measuring and inputting the current light engine's data on actual color coordinates for displayed Red, Green, Blue, and White color patterns, using a color coordinate measuring equipment.

At this moment, color correction is performed on the basis of previously inputted Desired Color Coordinates and Measured Color Coordinates. Measured Data on Service Engine's color coordinates is presented on the CCA label. Input the label values to perform CCA color correction.

1. Condition of the CCA Label upon Receipt of the Service Engine



⋆ "CCA LABEL" describes the measured color coordinates on the light engine.

2. CCA Service Procedures

To execute CCA adjustment , perform the following steps :

1) Turn off the power to put the unit into the STAND-BY mode.
2) In order to enter the Service Mode, Press "Mute" → "1" → "8" → "2" → "POWER" button on the Remote Control.
3) From the Factory Service Mode Menu; select SERVICE > CCA.
4) Switch the CCA OFF.
5) Enter the CCA Red, Green, Blue and White basic engine data to the DLP.
6) Input the D-White-x, y values in the coordinates per destination. (if necessary)
7) Select WB SPREAD, then press Enter to activate the WB Spread SET ensuring that you adjust until you get the OK sign. After adjusting, exit Factory Mode.
8) When the adjustment is complete, check the picture quality.

CCA Menu in FACTORY Mode

CCA ON/OFF
Red - x : ???
Red - y : ???
Red - Y : ???
Green - x : ???
Green - y : ???
Green - Y : ???
Blue - x : ???
Blue - y : ???
Blue - Y : ???
White - x : ???
White - y : ???
White - Y : ???
WB SPREAD
Move HDMI

⋆ Attention

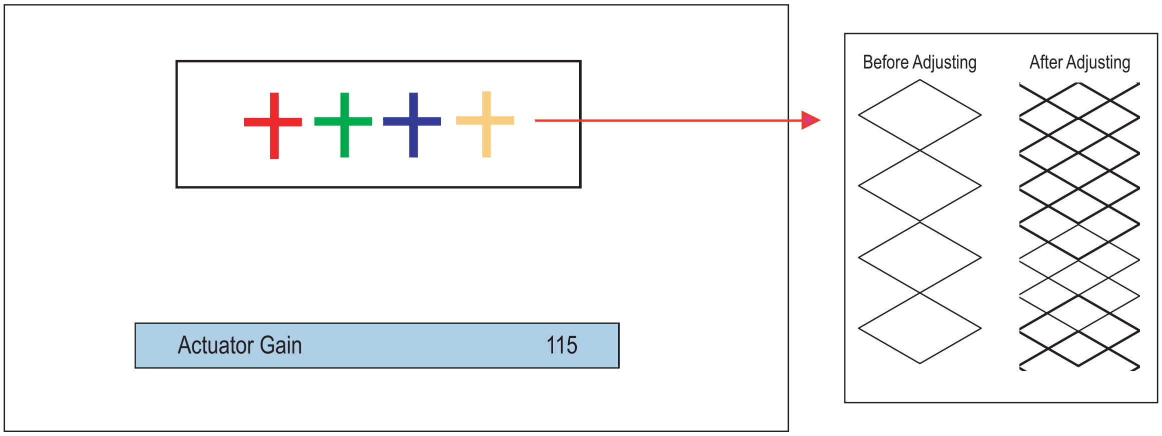
Performing CCA is independent on current display's resolution and input signal type if you don't measure color coordinates data.

Measuring color coordinates data requires specific equipment not possessed by service personnel, that makes performing manual adjustment impossible. Adjusting CCA is applied to all the signal mode.

Don't change Desired value because it will be hamful to the color of the SET.

3-4-4 ACTUATOR GAIN Adjustment

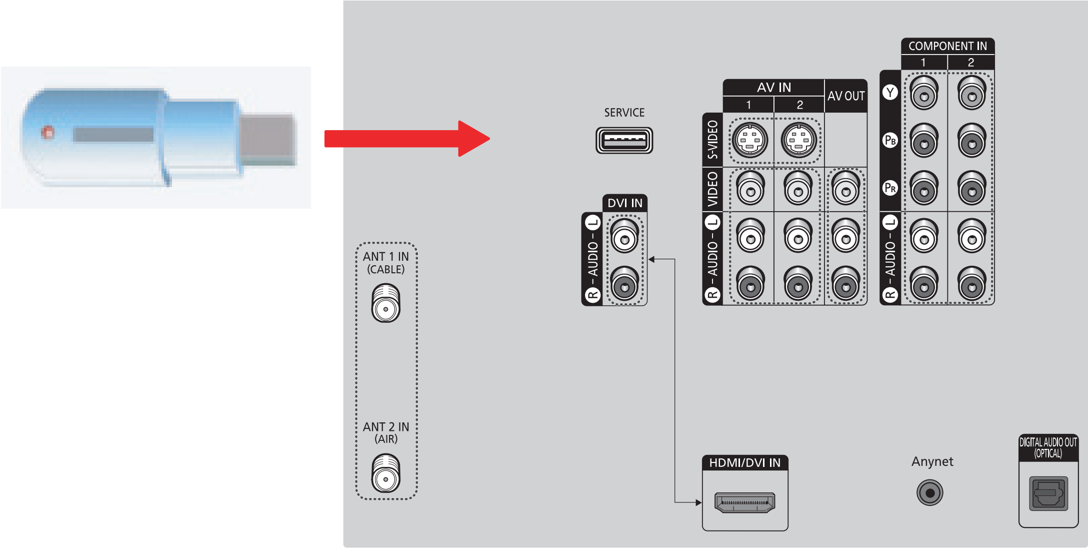
1. Before Adjustment
   1) Turn off the power to put the unit into the STAND-BY mode.
   2) In order to enter the Service Mode, Press "Mute" → "1" → "8" → "2" → "POWER" button on the Remote Control.
   3) Select "Service" on the first display of the Service mode menu.
   4) Press the ▲ ▼ (Up or Down) button to move to ACTUATOR GAIN, then press ENTER to select.



Actuator Gain 115

2. Making Adjustments
   1) As shown in the picture above, change the actuator values to eliminate saw tooth shapes.
      - To fine tune, increase the data value ensuring that you get the center between the starting and ending points of the disappearing saw tooth shape.

3-5 Software Upgrade


SERVICE
COMPONENT IN
1
2
AV IN
1
2
AV OUT
S-VIDEO
VIDEO
R - AUDIO - L
Y
PB
PR
DVI IN
R - AUDIO - L
ANT 1 IN
(CABLE)
ANT 2 IN
(AIR)
HDMI/DVI IN
Anynet
DIGITAL AUDIO OUT
(OPTICAL)

1. Prepare the USB memory stick with the built-in firmware.

2. While the TV is off, insert the USB stick into the SERVICE terminal.

3. When turning on the TV, there should be a long beeping tone and the firmware download process should start. If there is no sound from the TV, turn it off and then on again.

4. When the download is complete, there will be another long beeping tone and the TV will go into standby mode.

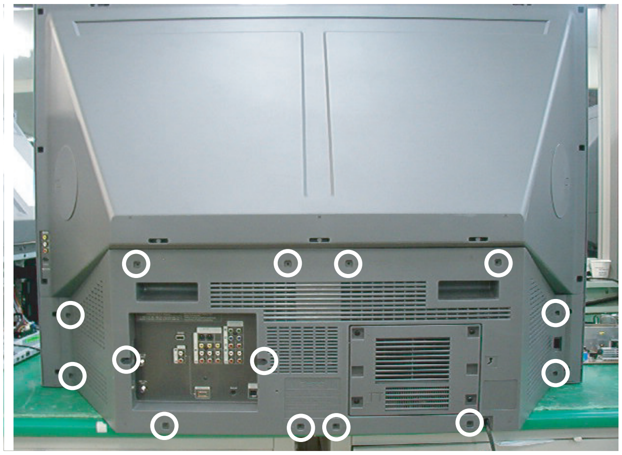
※ Check for the Firmware Version
1) Turn off the power to put the unit into the STAND-BY mode.
2) In order to enter the Service Mode, Press "Mute" → "1" → "8" → "2" → "POWER" buttons on the Remote Control.
3) In case entry into SERVICE MODE is unsuccessful, repeat steps 1 and 2 directly above.
4) You can check the firmware version at the bottom of the Factory menu.

T_HUR3AUS0_XXXX
200X_XX_XX
T-HURUCOM5-XXXX
T-HUR3AUS1_XXXX

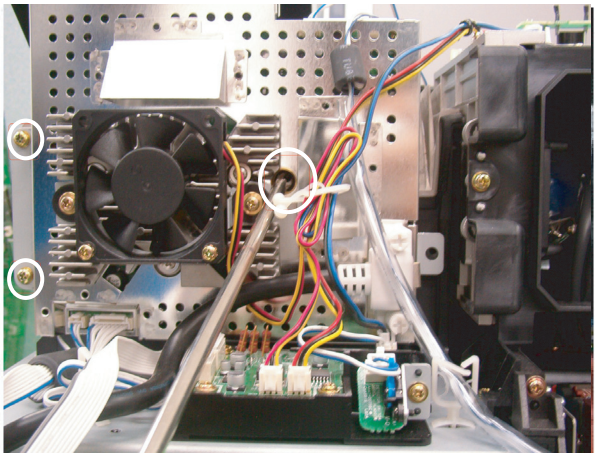
3-6 Replacements & Calibration

3-6-1 Tilt the Screen

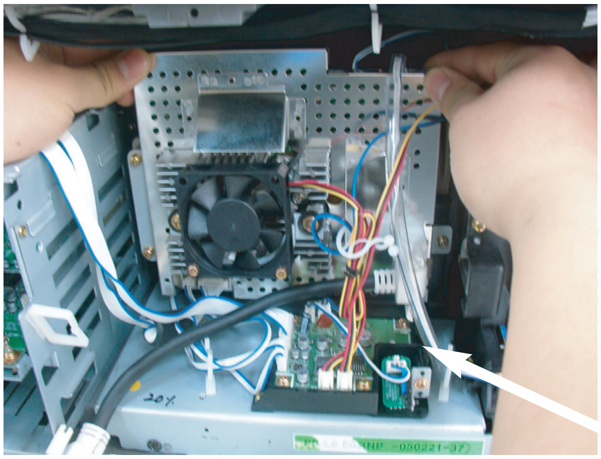
1. Remove the 14 point screws. Remove the Bottom cover.
   Fix the safety switch on the right with tape so that the set can be turned on after removing the bottom cover.
   : TH,B,M4.L15,BLK,SWRCH18A



2. Remove the 3 points screws.
   * Left 2 points screws
     : PWH,S,M3,L8,ZPC(YEL),SWRCH18A
   * Right 1 points screw
     : PWH,S,M3,L7,ZPC(YEL),SWRCH18A

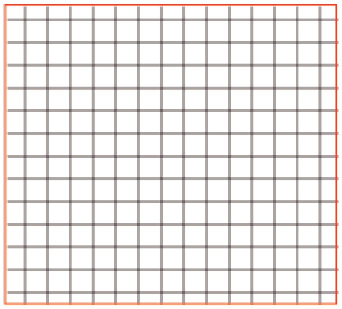


3. Turn off the power to put the unit into the STAND-BY mode.
   In order to enter the Service Mode, Press "Mute" → "1" → "8" → "2" → "POWER" button on the Remote Control.
   Select "DDP1011(L6)" on the first display of the Service Mode menu. Press the ▲ ▼ (Up or Down) button to move to TEST PATTERN, then press ENTER to select. Press the ▶ (Right) button until you see CROSSHATCH PATTERN.
   Then, adjust the screen position, by holding both of the upper corners of the DMD board.



Fix the safety switch on the right with tape so that the set can be turned on after removing the bottom cover.

CROSSHATCH PATTERN



※ Even when those screws are removed, the board does not separate it can be moved within the adjustable range because there is a spring screw at the center that holds it.

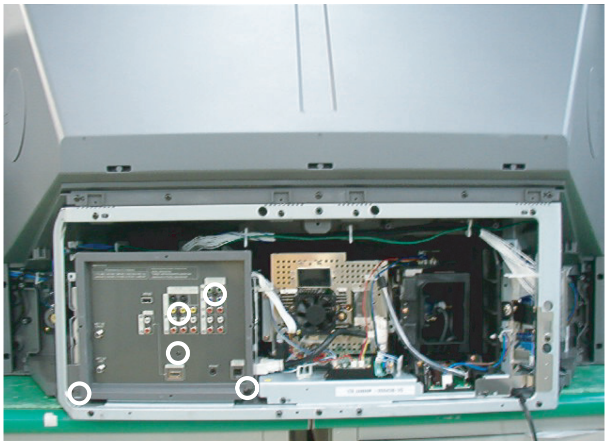
※ When adjusting the screen, it is better for two people to work together.
One person should adjust the picture position while the other person looks at the screen.

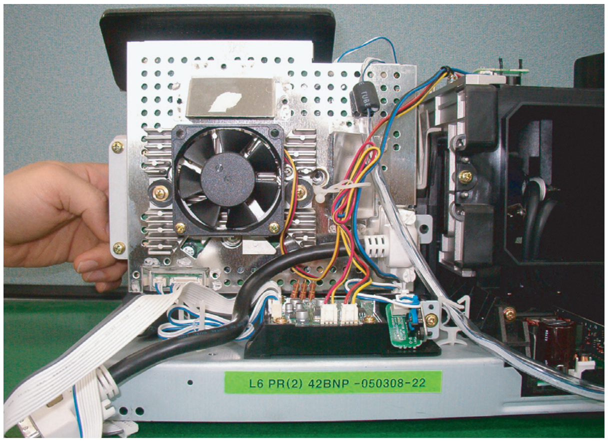
※ The movement direction of the board and the picture are opposite.
- When the board is lifted upward, the screen descends down.
- When it is tilted to the left, the screen tilts to the right.

※ When the picture adjustment is completed:
First, tighten the two screws on the left of the DMD board and then slowly tighten the one screw on the bottom right.
Be careful not to touch the board while tightening the screws.
(When using an electric-powered screwdriver, be careful that the torque is not too high.)

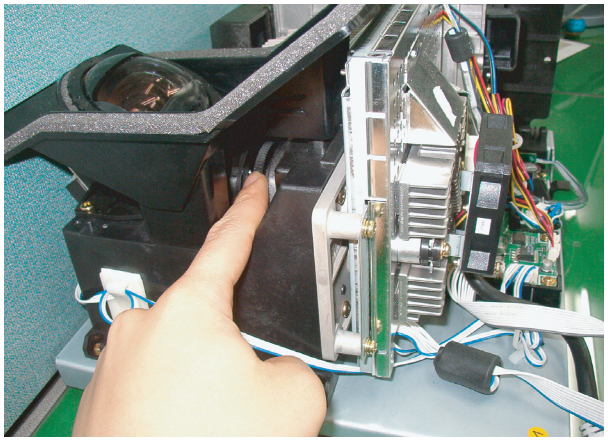
3-6-2 Align the Focus

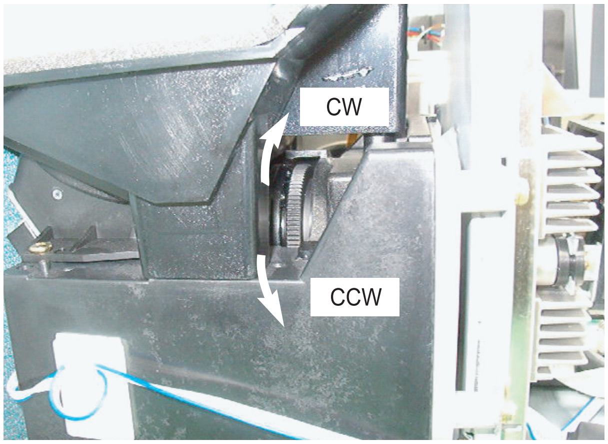
1. Loosen and remove the 6 screws on the terminal board and jack.
   : TH,B,M4.L15,BLK,SWRCH18A





2. It is not necerssary that engine assy seperate to adjust focus.
   You put your hand in set below diagram. Move the focus alignment dial of Projection lens to the clockwise or counter clockwise until the picture is clear displayed. You are easy to work toghter another service man.

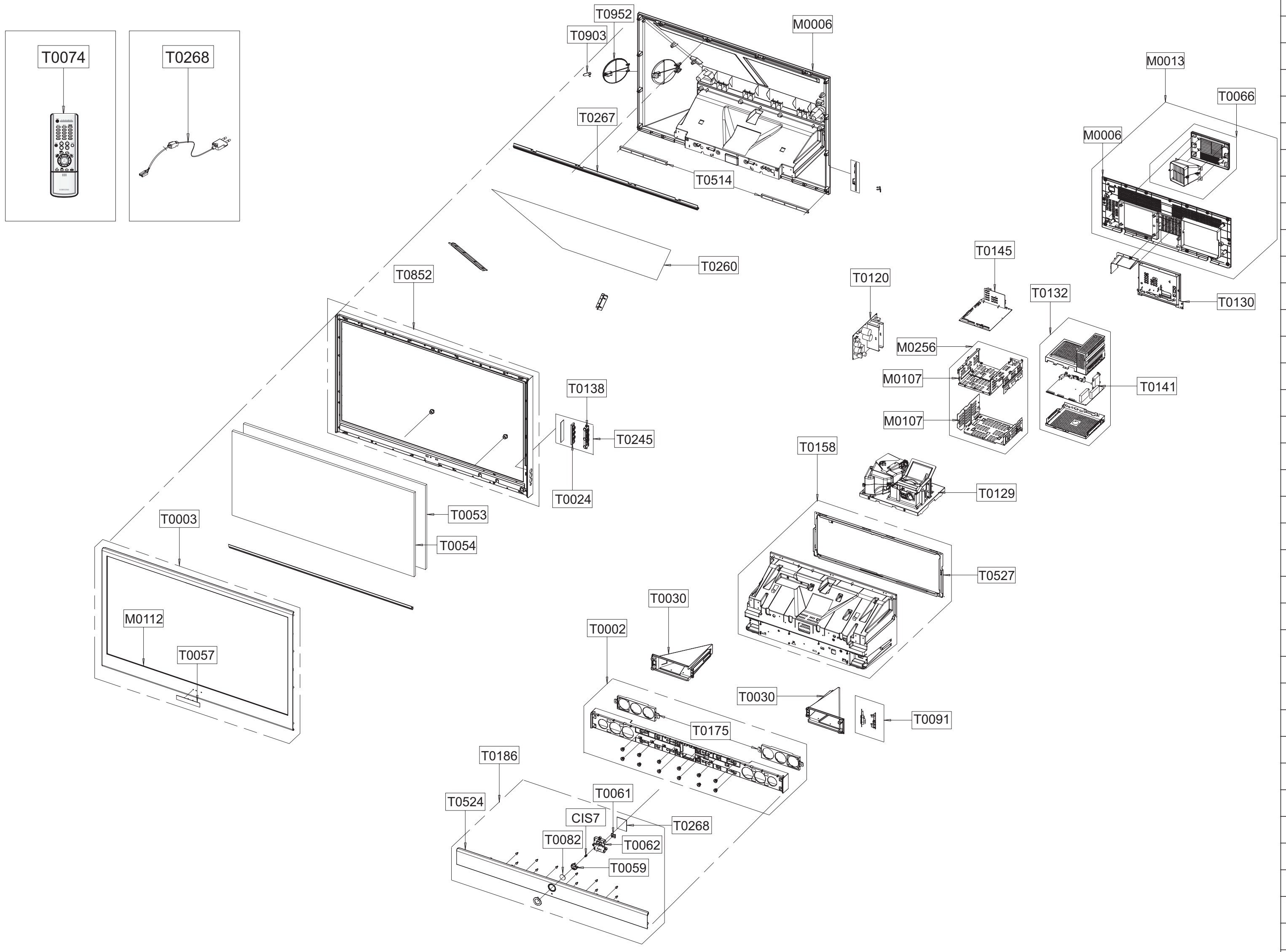




4. Exploded View & Part List

4-1 SP46L6HNX/XAX

You can search for the updated part code through ITSELF web site.
URL:http://itself.sec.samsung.co.kr



Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
CIS7	AA61-60003J	SPRING ETC-CS	-,SUS304,-,-,OD6,N7,OD6,-,	1	S.N.A	
M0006	BP63-00400A	COVER-REAR	46L6,HIPS,HB,GRAY,TOP	1	S.A	
M0006	BP63-00401A	COVER-REAR BOTTOM	50L6,HIPS,V0,GRAY	1	S.N.A	
M0013	BP96-00938B	ASSY COVER P-REAR BOTTOM	L6,HIPS V0,GR50	1	S.A	
M0107	BP61-00892A	BRACKET-PCB	50L3,SECC,T1.0,NTR,TOP(BUILT	1	S.N.A	
M0107	BP61-00893A	BRACKET-PCB	50L3,SECC,T1.0,NTR,BOT(BUILT	1	S.N.A	
M0112	BP63-00398F	COVER-FRONT	46L6,HIPS,HB,BLK,BKN1576,SEA	1	S.N.A	
M0256	BP96-00849F	ASSY BRACKET P-MAIN PCB	L3,L6,L7,SECC,T1	1	S.A	
T0002	BP96-00961B	ASSY COVER P-FRONT BOTTOM	46L6,HIPS,HB,G	1	S.A	
T0003	BP96-00993G	ASSY COVER P-FRONT	46L6,XAX(L64C),HIPS,H	1	S.A	
T0024	BP64-00384B	KNOB-FAMILY	L6,ABS,HB,GRAY,SVM-3012	1	S.N.A	
T0030	BP96-00970B	ASSY COVER P-SIDE	46L6,HIPS,HB,GR503,LEF	1	S.A	
T0030	BP96-00971B	ASSY COVER P-SIDE	46L6,HIPS,HB,GR503,RIG	1	S.A	
T0053	BP67-00240A	SCREEN FRESNEL	HURRICANE,Alkyl Methacryl	1	S.A	
T0054	BP67-00238A	SCREEN LENTI	HURRICANE,Alkylmethacrylate	1	S.A	
T0057	BP64-00177A	BADGE-BRAND	ALL,AL,T1.5,70,11.3,BLK,SILI	1	S.A	
T0059	BP64-00382A	INDICATOR LED	50L3,ABS CLEAR (LG)	1	S.N.A	
T0061	BP64-00385B	WINDOW-REMOCON	L3,L6 Series,ACRYL,MILKY	1	S.N.A	
T0062	BP61-00530A	HOLDER-POWER	50L3,HIPS HB,GRAY	1	S.N.A	
T0066	BP96-00535D	ASSY COVER P-DUCT	50L3,HIPS HB,GRY	1	S.A	
T0074	BP59-00084B	REMOCON	HURRICANE,TM76,200*54*30,ZILOG M	1	S.A	
T0082	BP64-00309B	WINDOW LED	50L3,ACRYL,2.0,half-mirror,SE	1	S.N.A	
T0091	BP94-02059C	ASSY PCB MISC-A/V SIDE	HLR5067,L64B,L6	1	S.A	
T0120	BP94-02222N	ASSY PCB POWER	SP42L6/XAX,L64C(L6),ATSC,	1	S.A	
T0129	BP96-01018S	ASSY ENGINE P-DLP	46L6(L620),OSRAM 120W,	1	S.A	
T0130	BP96-00848J	ASSY COVER P-TERMINAL BOARD	50L3(L64C),H	1	S.A	
T0132	BP94-02233A	ASSY PCB MISC-DIGITAL	HURRICANE3,L64C,AT	1	S.A	
T0138	BP64-00383B	KNOB-HOLDER	L6,ABS,HB,GRAY,SVM3012	1	S.N.A	
T0141	BP97-00982A	ASSY SMD-DIGITAL	L64C,ATSC	1	S.N.A	
T0145	BP94-02232A	ASSY PCB MISC-ANALOG	HLR5056W,L64C,USA,L	1	S.A	
T0158	BP96-00937C	ASSY COVER P-MAIN	L6,M62A,HIPS, V0,GR503	1	S.A	
T0175	BP96-01278A	ASSY SPEAKER P	8ohm,L6(DLP)_VE,15W	2	S.A	
T0186	BP96-00964B	ASSY COVER P-GRILLE	46L6,HIPS,HB,GR503,S	1	S.A	
T0245	BP94-02140D	ASSY PCB MISC-KEY CONTROL	HLP5063W,L62B,	1	S.A	
T0260	BP67-00095A	MIRROR	MIRROR FRONT 46",GLASS,1005X530X5	1	S.A	
T0267	BP61-00936A	BRACKET-MIRROR TOP	46L6,AL6063 EXTR	1	S.N.A	
T0268	BP94-02140G	ASSY PCB MISC-RMC LED	42 ~ 67,COMMON	1	S.A	
T0268	3903-000144	CBF-POWER CORD	DT,US,BP3/Y,U(IEC C13-RA)	1	S.A	
T0514	BP61-00911A	BRACKET-SUPPORT	46L6,SECC-1,T1.6,NTR,BAC	2	S.N.A	
T0524	BP63-00404A	COVER-GRILLE	46L6,HIPS,HB,GR503,SV012P	1	S.N.A	
T0527	BP61-01045A	BRACKET-COVER	L6,SECC-1,T1.2,NTR,BOTTOM	1	S.N.A	
T0852	BP96-00967B	ASSY COVER P-MIDDLE	46L6,HIPS,HB,GR503,S	1	S.A	
T0903	BP61-00528A	HOLDER-DUST	50L3,HIPS HB,GRAY	2	S.N.A	
T0952	BP63-00294B	COVER DUST-ASSY	L6,HIPS,HB,GRAY	2	S.A	

5. Electrical Part List

5-1 SP46L6HNX/XAX Service Item

You can search for the updated part code through ITSELF web site.
URL:http://itself.sec.samsung.co.kr

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
T0245	BN39-00164D	LEAD CONNECTOR-ASSY	HURRICANE,UL1015#18,	1	S.A	
T0128	BN39-00518B	CBF SIGNAL-STEREO	SVP-50L3HR,1P,UL2464#2	1	S.A	
3-2P_LC	BP39-00026E	LEAD CONNECTOR-COVER DECTECT	HLP5063WX,U	1	S.A	
M0013	BP96-00938B	ASSY COVER P-REAR BOTTOM	L6,HIPS V0,GR50	1	S.A	
M0018	BP97-00980A	ASSY MICOM	T-HUR3AUSO-1007_NOR,L63C,49BV	1	S.A	
M0018	BP97-00981A	ASSY MICOM	T-HUR3AUSO-1007_NAND,L63C,KFG	1	S.A	
M0125	BP39-00106C	CBF SIGNAL-DVI(D)	HLP5063WX,24P/24P,2027	1	S.A	
M2893	BP39-00030A	LEAD CONNECTOR	L62A/HLM507W,UL1061#28,UL	1	S.A	
M2893	BP39-00043A	LEAD CONNECTOR	L62A/HLM507W,UL1007#22,UL	1	S.A	
M2893	BP39-00043A	LEAD CONNECTOR	L62A/HLM507W,UL1007#22,UL	1	S.A	
M2893	BP39-00096B	LEAD CONNECTOR	HLN507W,UL2547#26,UL/CSA,	1	S.A	
M2893	BP39-00103A	LEAD CONNECTOR	HLN507WX,UL2464 #26,UL/CS	1	S.A	
M2893	BP39-00108A	LEAD CONNECTOR	HLN507WX,UL1007#26,UL/CSA	1	S.A	
M2893	BP39-00140A	LEAD CONNECTOR	HLP5063WX,UL2547#26,3P,40	1	S.A	
M2893	BP39-00141A	LEAD CONNECTOR	HLP5063WX,UL1617#22,UL/CS	1	S.A	
M2893	BP39-00146A	LEAD CONNECTOR	HLP5063W,UL1185#26,UL,30P	1	S.A	
M2893	BP39-00147A	LEAD CONNECTOR	HLP5063W,UL1007#26,UL/CSA	1	S.A	
M2893	BP39-00148B	LEAD CONNECTOR	HLP5085WX,UL1007#26,10P,5	1	S.A	
M2893	BP39-00174A	LEAD CONNECTOR	SVP-50L3HD,UL1007#22,UL/C	1	S.A	
M2893	BP39-00175A	LEAD CONNECTOR	HLP5067WX,UL1007#26,UL/CS	2	S.A	
M2893	BP39-00176B	LEAD CONNECTOR	HLR5067WX,UL1617#22,1P,80	1	S.A	
M2893	BP39-00191A	LEAD CONNECTOR	HLR5667W,UL1571#30,5p,350	1	S.A	
M2893	BP39-00208A	LEAD CONNECTOR	SVP-42L6HDL,UL1007#26,UL/	1	S.A	
T0002	BP96-00961B	ASSY COVER P-FRONT BOTTOM	46L6,HIPS,HB,G	1	S.A	
T0003	BP96-00993G	ASSY COVER P-FRONT	46L6,XAX(L64C),HIPS,H	1	S.A	
T0010	BP96-00940A	ASSY HOLDER P-MIRROR LEFT	L6 ALL, L8,HIP	1	S.A	
T0010	BP96-00941A	ASSY HOLDER P-MIRROR RIGHT	L6 ALL, L8,HI	1	S.A	
T0030	BP96-00970B	ASSY COVER P-SIDE	46L6,HIPS,HB,GR503,LEF	1	S.A	
T0030	BP96-00971B	ASSY COVER P-SIDE	46L6,HIPS,HB,GR503,RIG	1	S.A	
T0049	BP47-00012A	LAMP-BALLAST	0.4A,135W,380V DC	1	S.A	
T0074	BP59-00084B	REMOCON	HURRICANE,TM76,200*54*30,ZILOG M	1	S.A	
T0076	BP39-00203A	WIRE HARNESS	HLR5078WX,UL1007#22,UL/CSA,	1	S.A	
T0076	BP39-00209A	WIRE HARNESS	HLR5078WX,UL1007#22,UL/CSA,	1	S.A	
T0091	BP94-02059C	ASSY PCB MISC-A/V SIDE	HLR5067,L64B,L6	1	S.A	
T0120	BP94-02222N	ASSY PCB POWER	SP42L6/XAX,L64C(L6),ATSC,	1	S.A	
T0129	BP96-01018S	ASSY ENGINE P-DLP	46L6(L620),OSRAM 120W,	1	S.A	
T0132	BP94-02233A	ASSY PCB MISC-DIGITAL	HURRICANE3,L64C,AT	1	S.A	
T0145	BP94-02232A	ASSY PCB MISC-ANALOG	HLR5056W,L64C,USA,L	1	S.A	
T0158	BP96-00937C	ASSY COVER P-MAIN	L6,M62A,HIPS, V0,GR503	1	S.A	
T0175	BP96-01278A	ASSY SPEAKER P	8ohm,L6(DLP)_VE,15W	2	S.A	
T0245	BP94-02140D	ASSY PCB MISC-KEY CONTROL	HLP5063W,L62B,	1	S.A	
T0275	BP96-00972B	ASSY MISC P-INLET	HLR5067WX,Hurricane,Ex	1	S.A	

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
T0286	BP31-00010B	FAN-DC	SVP-50L7XHD,UL94V-0, PBT,Wire Len	1	S.A	
T0286	BP31-00011A	FAN-DC	AD0612LB-D72GL,P.B.T UL94-Vo,Wire	1	S.A	
T0703	BP96-01102B	ASSY DMD BOARD P	L6 Osram E22,DMD BOARD,	1	S.A	
T0888	BP96-01394A	ASSY LAMP P	L620,OSRAM 120W,E22,50L4(AKA	1	S.A	
T0889	BP96-01103A	ASSY COLOR WHEEL P	L6,SERVICE	1	S.A	

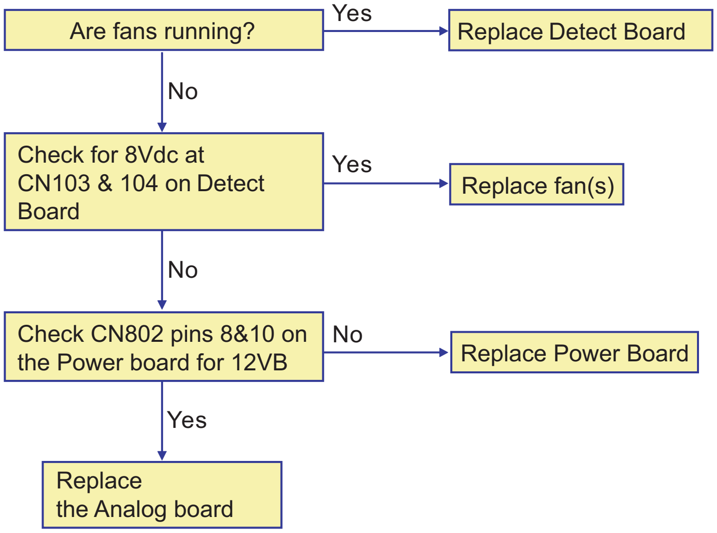
6. Troubleshooting

6-1 Checkpoints by Error Mode

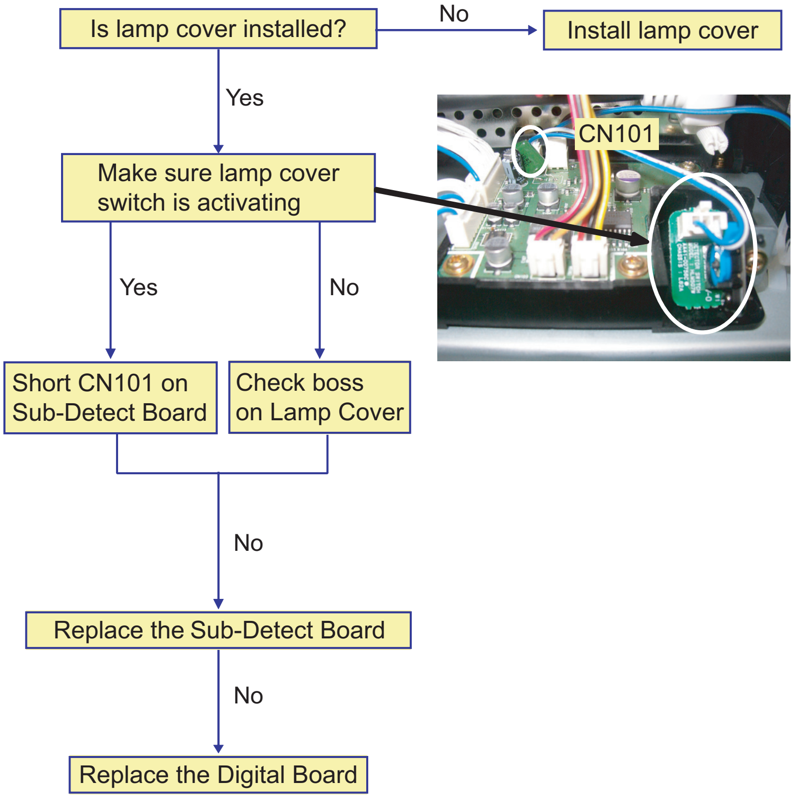
1. Power Light: Check the master switch (ON/OFF) and the fuse to see if they are operating.

2. LED Blinking: See the basic LED checklist in 6-2-1

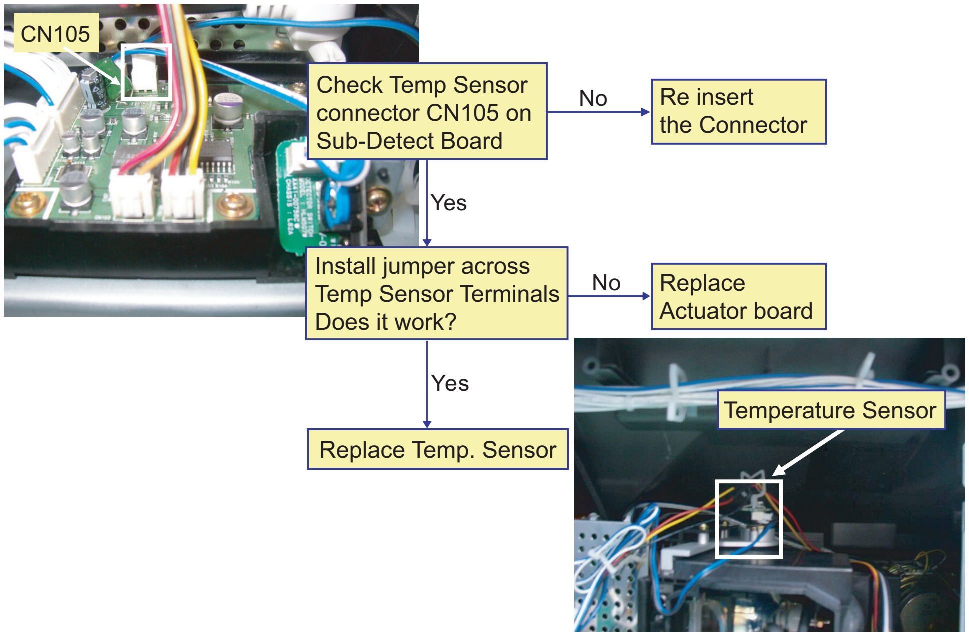
< Blinking Temp & Timer LED >


Are fans running?
Yes
Replace Detect Board
No
Check for 8Vdc at CN103 & 104 on Detect Board
Yes
Replace fan(s)
No
Check CN802 pins 8&10 on the Power board for 12VB
No
Replace Power Board
Yes
Replace the Analog board

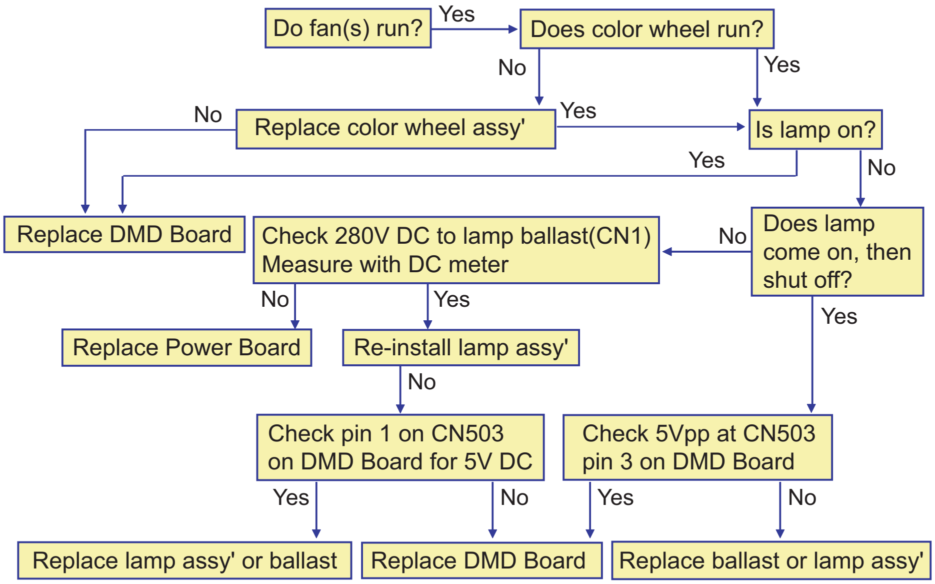
< Blinking Lamp and Temp LEDs >


Is lamp cover installed?
No
Install lamp cover
Yes
CN101
Make sure lamp cover switch is activating
Yes
No
Short CN101 on Sub-Detect Board
Check boss on Lamp Cover
No
Replace the Sub-Detect Board
No
Replace the Digital Board

< Blinking Temp LED >

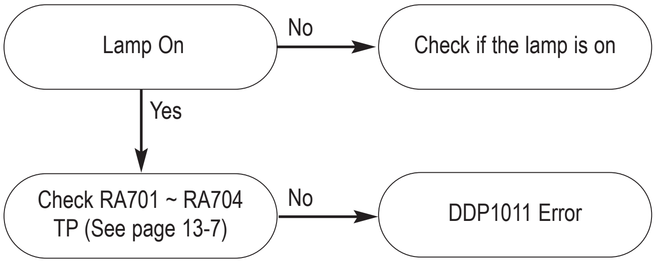

CN105
Check Temp Sensor connector CN105 on Sub-Detect Board
No
Re insert the Connector
Yes
Install jumper across Temp Sensor Terminals Does it work?
No
Replace Actuator board
Yes
Replace Temp. Sensor
Temperature Sensor

A blinking lamp LED is the most common failure indication. It can be caused by no lamp, no color wheel, no fan(s), or other defective components.


Do fan(s) run?
Yes
Does color wheel run?
No
Yes
No
Replace color wheel assy'
Yes
Is lamp on?
Yes
No
Replace DMD Board
Check 280V DC to lamp ballast(CN1) Measure with DC meter
No
Does lamp come on, then shut off?
No
Yes
Yes
Replace Power Board
Re-install lamp assy'
No
Check pin 1 on CN503 on DMD Board for 5V DC
Check 5Vpp at CN503 pin 3 on DMD Board
Yes
No
Yes
No
Replace lamp assy' or ballast
Replace DMD Board
Replace ballast or lamp assy'

3. Noise:
Internal noise may be caused by a foreign substance on the fan or driving device.
For a DLP TV, the lamp fan, DMD board fan and color wheel are vulnerable to noise. Sometimes the connector wire around the lamp or DMD fan makes contact with the fan, while the color wheel is protected inside the module and cannot make contact with any nearby wires. However the color wheel sensor or the drive motor may cause noise by making contact with the color wheel.
As the color wheel uses an air bearing system, it has a very slight possibility of creating internal noise.
Sometimes outworn transistors may cause noise when regular noise occurs for other reasons than the fan itself.When irregular noise occurs for no particular reason, check the inside of the TV for any foreign substances.
The DLP projection TV may cause noise as the physical screen is empty inside, causing a resonance to a particular frequency. Thus a low vibration is not a malfunction.
Any 'creaking' noise is mostly from the structure of the device itself. A short, harsh noise may occur from a distortion or malformation due to thermal expansion between the metal joints, screws and loaded parts, respectively. Any intermittent 'creaking' noise can be removed by loosening the screws.

4. Black Screen (Voice Output):
Check the lamp/ballast of the replacement and, if there is nothing wrong, check the array resistance RA701-RA704 for the wave form or look into the connector joint areas as described in the manual (p.6-1).
When the measurement is not +- 25v, DDP1011 is in error. In conclusion, you should replace the DMD board.



5. A black screen with the lamp on: Replace the DMD board.

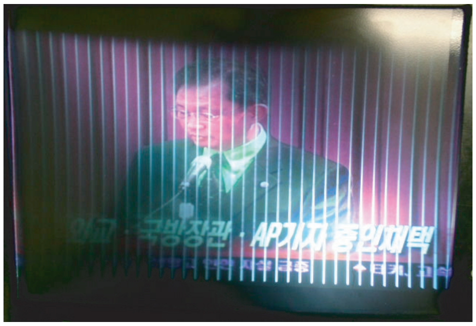
6. Line Pattern: Regular line patterns occur vertically or horizontally: Replace the DMD board.

7. Voice Distortion: Replace the analog board.

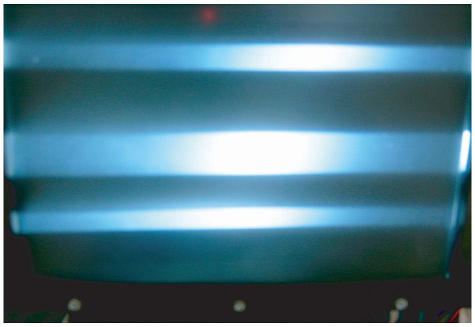
8. Outside Light: This is not a product malfunction, but a possible installation or human error. This occurs when the projected light from the surrounding illumination reflects onto the screen. This disappears as the TV starts operating and the TV lamp gets brighter. However, you can avoid outside light by changing the position of the TV or the installation angle.
Decreasing the illumination or changing the indoor lighting may work.

9. Screen Flip-over:
Enter Factory mode in DDP1011 and perform H-Flip (flip horizontally) and V-Flip (flip vertically).
The screen will flip over horizontally or vertically.

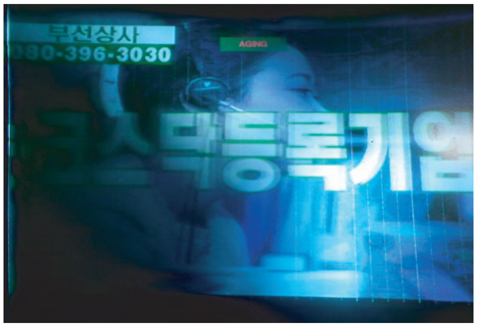
10. Other Screen Errors:



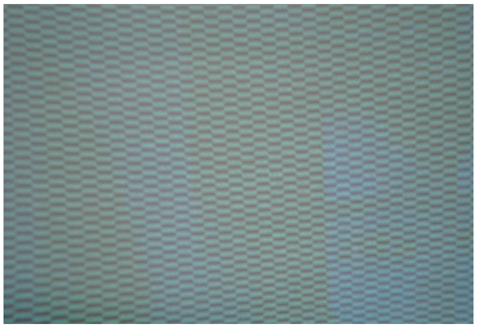
- 40 Vertical lines 16 pixels wide:
  DDP1011 or BGA, DMD panel interference.
  → Replace the DMD board



- Horizontal Bar or No Raster:
  Error in DDP1011 or the DMP panel.
  → Replace the DMD board



- Dotted Vertical Bar:
  Error in Rambus Dram(IC 403) or the soldering
  → Replace the DMD board



- Beehive mosaic patterns all over the screen:
  Error in the LVDS Receiver (IC 601) or the soldering
  The H sync signals are not transferred to DDP1011.
  → Replace the DMD board.

6-1-1 Video Circuit Error Checking

■ Basics:
- The DDP1011 on the DMD board has a feature to display internal test patterns.
- DNIe, which is an end port in the digital board, has a feature to display internal test patterns.
- The analog board sends signals to ADV7401 on the digital board.
- The analog board is the first output and the digital board is the second one, followed by DMD, which is the final one.

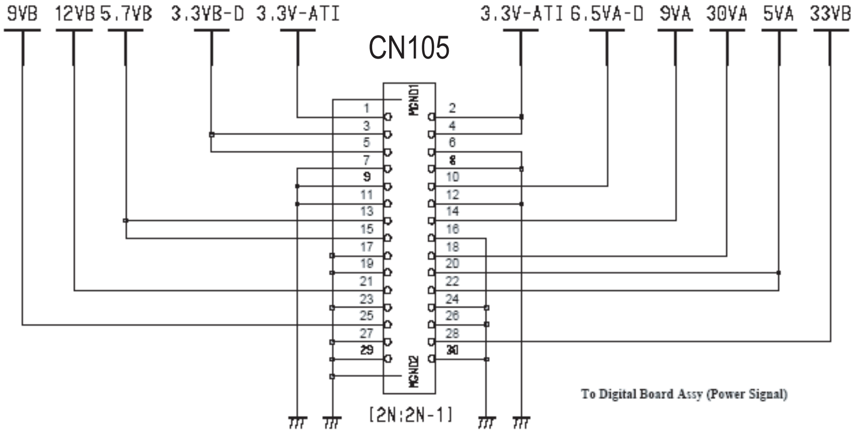
■ Diagnosis By Module

1. Access Service Mode
(In Standby mode, press "Mute", "1", "8", "2" and "Power" to turn the screen on and enter service mode)

2. Check if there is an error in the DMD board
DDP1011 → TEST PATTERN → Press the right arrow key:
Options of FULL WHITE, BLACK, RED, GREEN and BLUE PATTERN are displayed on the screen.
If "Pattern" does not appear, this is a DMD board error.

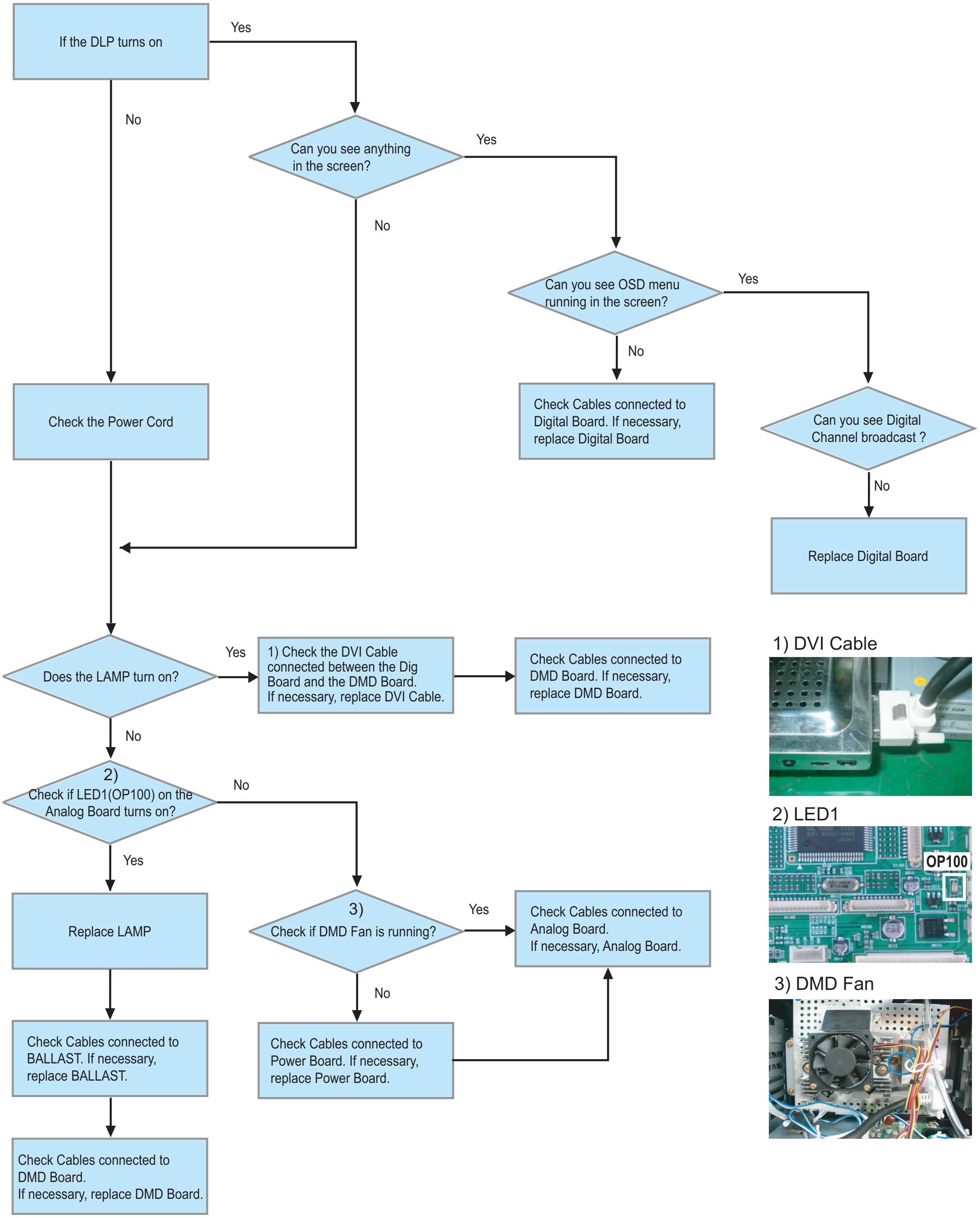
3. Check if there is an error in the digital board before the DMD.
When the DMD board has been determined to be error free based on the test patterns:
FACTORY MODE → DNIe → TEST PATTERN normal display: no error in the digital board.
If "Pattern" does not appear, it may be from a DMD board or ATI error or there is an analog board malfunction.

4. Check if there is an error in the analog board.
Check for a power signal from the analog to the digital boards. (See the circuit diagram below).


9VB
12VB
5.7VB
3.3VB-D
3.3V-ATI
CN105
3.3V-ATI
6.5VA-D
9VA
30VA
5VA
33VB
MGND1
MGND2
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30
[2N:2N-1]
To Digital Board Assy (Power Signal)

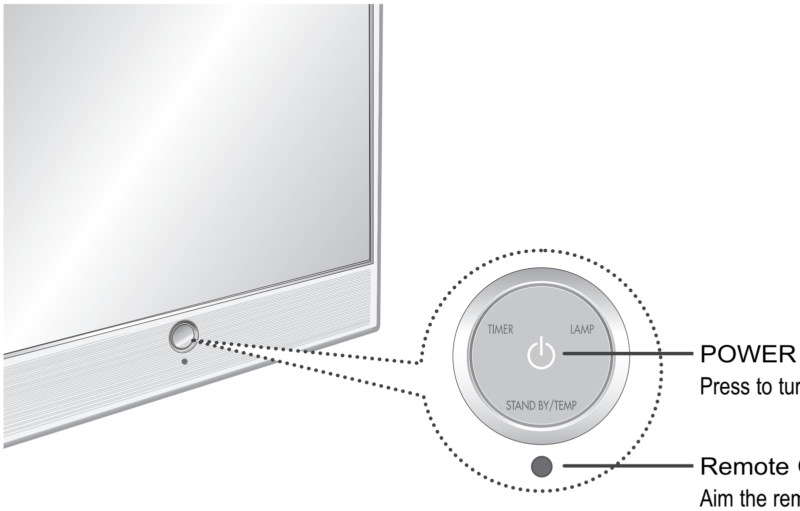
Angle and EMI Shielding Type
(3711-005567)

6-1-2 Flow Chart for Malfunction


If the DLP turns on
Yes
No
Can you see anything in the screen?
Yes
No
Can you see OSD menu running in the screen?
Yes
No
Check Cables connected to Digital Board. If necessary, replace Digital Board
Can you see Digital Channel broadcast ?
No
Replace Digital Board
Check the Power Cord
Does the LAMP turn on?
Yes
1) Check the DVI Cable connected between the Dig Board and the DMD Board. If necessary, replace DVI Cable.
Check Cables connected to DMD Board. If necessary, replace DMD Board.
No
2) Check if LED1(OP100) on the Analog Board turns on?
No
Yes
Replace LAMP
3) Check if DMD Fan is running?
Yes
Check Cables connected to Analog Board. If necessary, Analog Board.
No
Check Cables connected to BALLAST. If necessary, replace BALLAST.
Check Cables connected to Power Board. If necessary, replace Power Board.
Check Cables connected to DMD Board. If necessary, replace DMD Board.
1) DVI Cable
2) LED1
OP100
3) DMD Fan

6-2 Troubleshooting Procedures by Error Modes

6-2-1 Installation & Connection



POWER
Press to turn the TV on and off.

Remote Control Sensor
Aim the remote control towards this spot on the TV.

● : Light is On
◑ : Light is Blinking
○ : Light is Off

TIMER	LAMP	STAND BY/TEMP	Indication
○	○	●	Standby state.
○	◑	○	The picture will automatically appear in about 15 seconds.
●	◑	○	Auto Timer ON/OFF has been set and the set will automatically be turned on in about 25 seconds.
◑	○	◑	A cooling fan inside the set is not operating normally.
○	◑	◑	Lamp cover on rear of the set is not properly shut.
○	○	◑	Check if the ventilation hole on the rear of the set is blocked, because if the inner temperature is too high, the power will shut off.
◑	◑	◑	Lamp may be defective.

* It takes about 30 seconds for the TV to warm up, so normal brightness may not appear immediately.
* The TV has a fan to keep the inside lamp from overheating. You'll occasionally hear it working.

6-2-2 Protect Status

1. When the rear cover is opened
A sensor detects when the rear cover is opened and turns the set off and then into Standby mode.
If you close the cover or fix the switch, you can turn the set on by pressing the Power button on the unit or the remote control.
The set will then operate normally.

2. When the temperature sensor operates
When the set is overheated, the internal temperature sensor turns the set off and the set goes to Standby mode.
When the internal temperature of the set returns to a normal range, turn the power on by pressing the Power button on the unit or the remote control. The set will then operate normally.

3. Attempting to turn the lamp on fails repeatedly
If turning the lamp on fails, the set automatically tries turning the lamp on 3 times. If all attempts fail, all LED's on the front panel will blink. Check the lamp and the ballast and replace them, if necessary.

6-2-3 Troubleshooting by the Checksum

Using Checksum to determine an error is neither reliable nor convenient.
The checksum can only be used effectively during a S/W service repair.
The checksum will be the same if the S/W version loaded into the TV is the same.
As programs of the same version have the same checksum value, you can determine if the program has been properly downloaded if you know the checksum of the version.

The following is required:
Factory Mode → Checksum → right button → checksum calculation → checksum output (ex: 0xab2b)

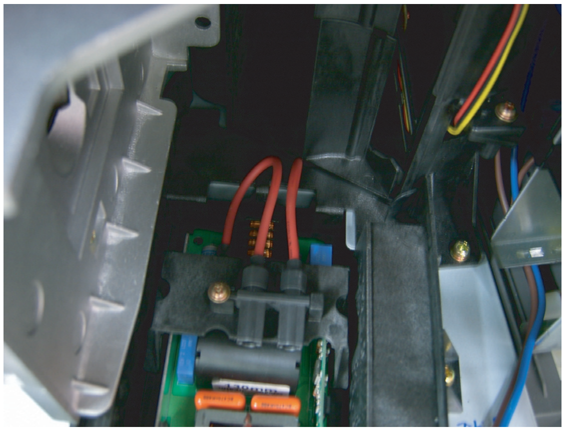
■ Examples
T_ROBOAKR1_1010 : Checksum = 0xab2b
T_ROBOAKR1_1014 : Checksum = 0x4faa

6-3 Troubleshooting Procedures by ASS'Y

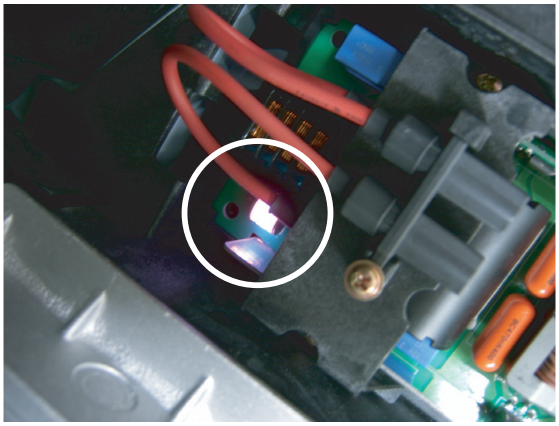
6-3-1 Check Lamp & Ballast

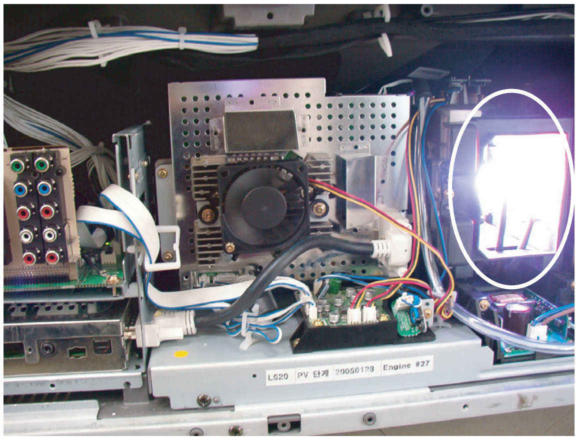
1. When the lamp is not on, check if there is anything wrong with the ballast.

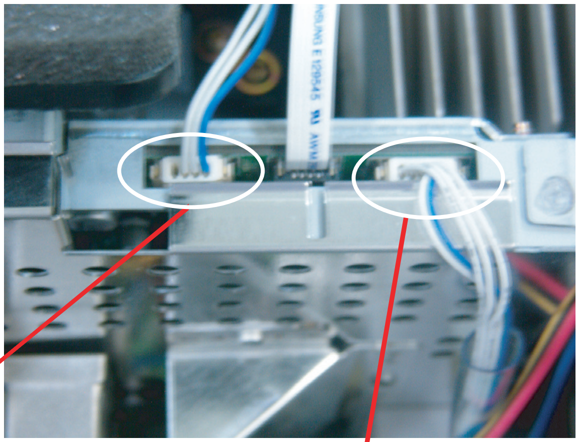
   Remove the lamp. Fix the safety switch on the right with tape and turn on the power.
   Check to see if a blue flame starts igniting in the arc gap inside the ballast momentarily during start-up.
   There is no problem with the ballast if there is a flame. When the ballast has no error, replace the lamp.



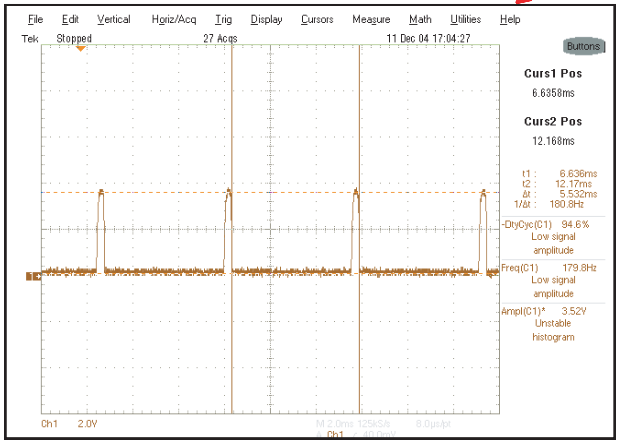
A blue flame occurs momentarily during start-up.




L620 PV 단계 20050128 Engine #27

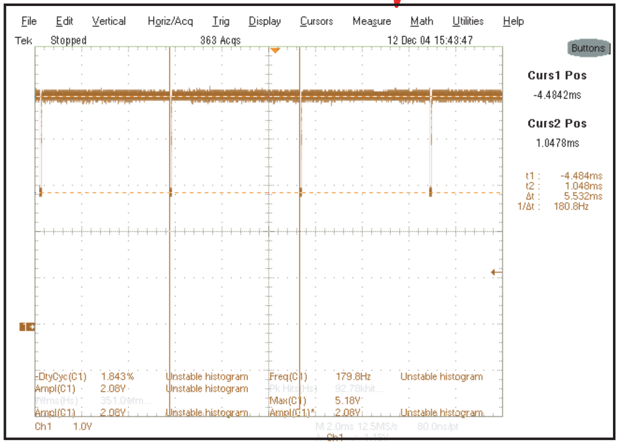


3.5V 180Hz


File
Edit
Vertical
Horiz/Acq
Trig
Display
Cursors
Measure
Math
Utilities
Help
Buttons

```
Tek   Stopped          27 Acqs          11 Dec 04 17:04:27

Curs1 Pos
6.6358ms
Curs2 Pos
12.168ms

t1 :    6.636ms
t2 :    12.17ms
Δt :    5.532ms
1/Δt :  180.8Hz

-DtyCyc(C1)   94.6%
   Low signal
   amplitude
Freq(C1)      179.8Hz
   Low signal
   amplitude
Ampl(C1)*     3.52V
   Unstable
   histogram

Ch1   2.0V                M 2.0ms 125kS/s     8.0µs/pt
                          A  Ch1  ∫  40.0mV
```

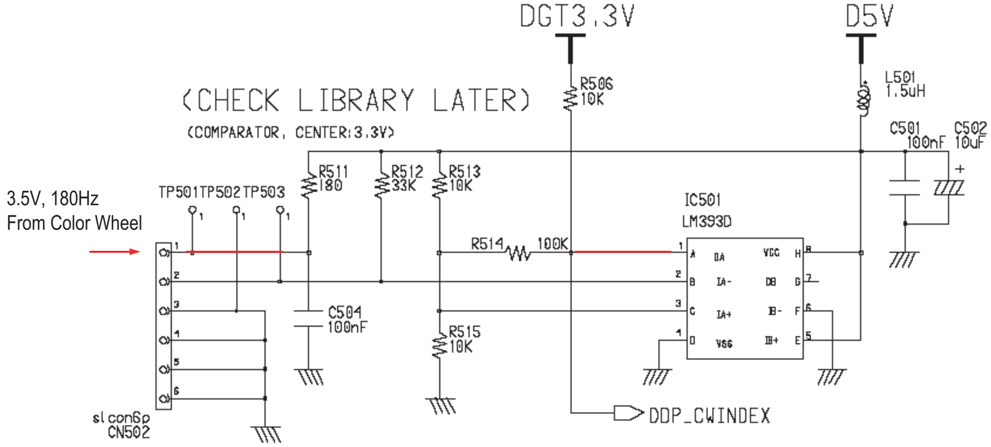
5V 180Hz


File
Edit
Vertical
Horiz/Acq
Trig
Display
Cursors
Measure
Math
Utilities
Help
Buttons

```
Tek   Stopped          363 Acqs          12 Dec 04 15:43:47

Curs1 Pos
-4.4842ms
Curs2 Pos
1.0478ms

t1 :    -4.484ms
t2 :    1.048ms
Δt :    5.532ms
1/Δt :  180.8Hz

-DtyCyc(C1)  1.843%      Unstable histogram   Freq(C1)     179.8Hz   Unstable histogram
Ampl(C1)     2.08V       Unstable histogram   Pk Hits(Hs)  92.78khit...
Wfms(Hs)     351.0wfm...                      Max(C1)      5.18V
Ampl(C1)     2.08V       Unstable histogram   Ampl(C1)*    2.08V     Unstable histogram

Ch1   1.0V                M 2.0ms 12.5MS/s    80.0ns/pt
```

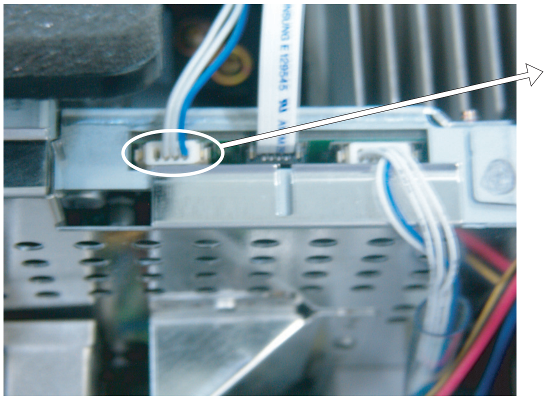
6-3-2 When the lamp and the ballast are normal but the lamp does not turn on or turns off right after quickly lighting up

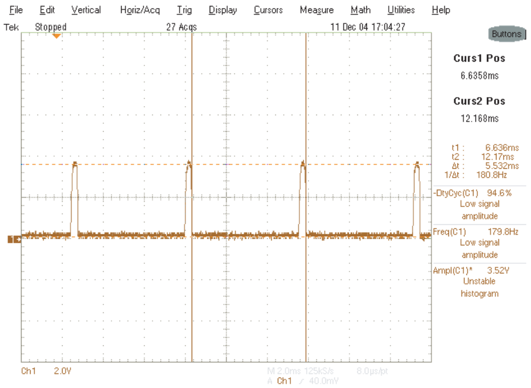
1. Check the color wheel
   Check if the color wheel is running. + Check the DMD board and the ballast for the signals.
   Check the second CN503 pin for input signals. When 3.5V, 180Hz is output, the color wheel is operating normally.


DGT3.3V
D5V
(CHECK LIBRARY LATER)
(COMPARATOR, CENTER:3.3V)
R506 10K
L501 1.5uH
C501 100nF
C502 10uF
R511 180
R512 33K
R513 10K
3.5V, 180Hz
From Color Wheel
TP501 TP502 TP503
IC501
LM393D
R514 100K
C504 100nF
R515 10K
slcon6p
CN502
DDP_CWINDEX

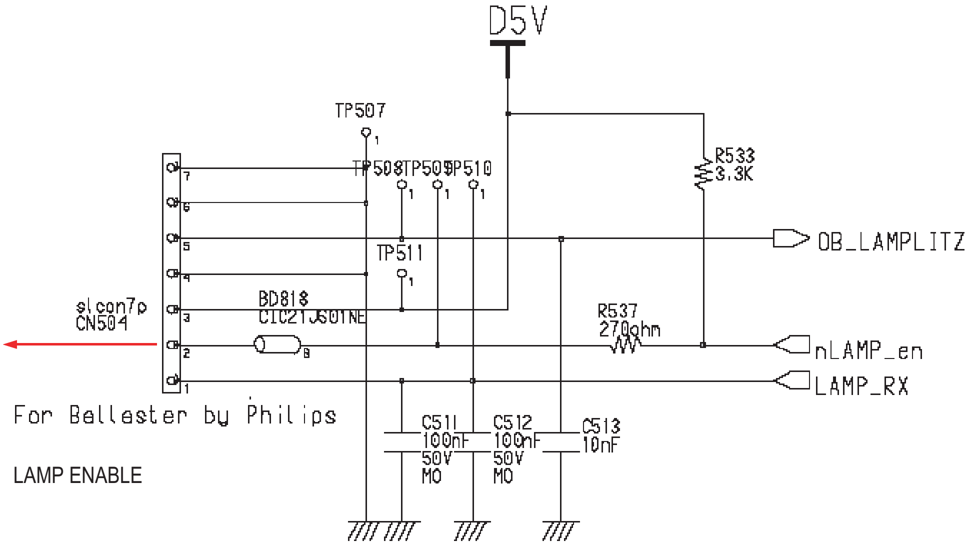
(LAMP CONTROL)

3.5V 180Hz

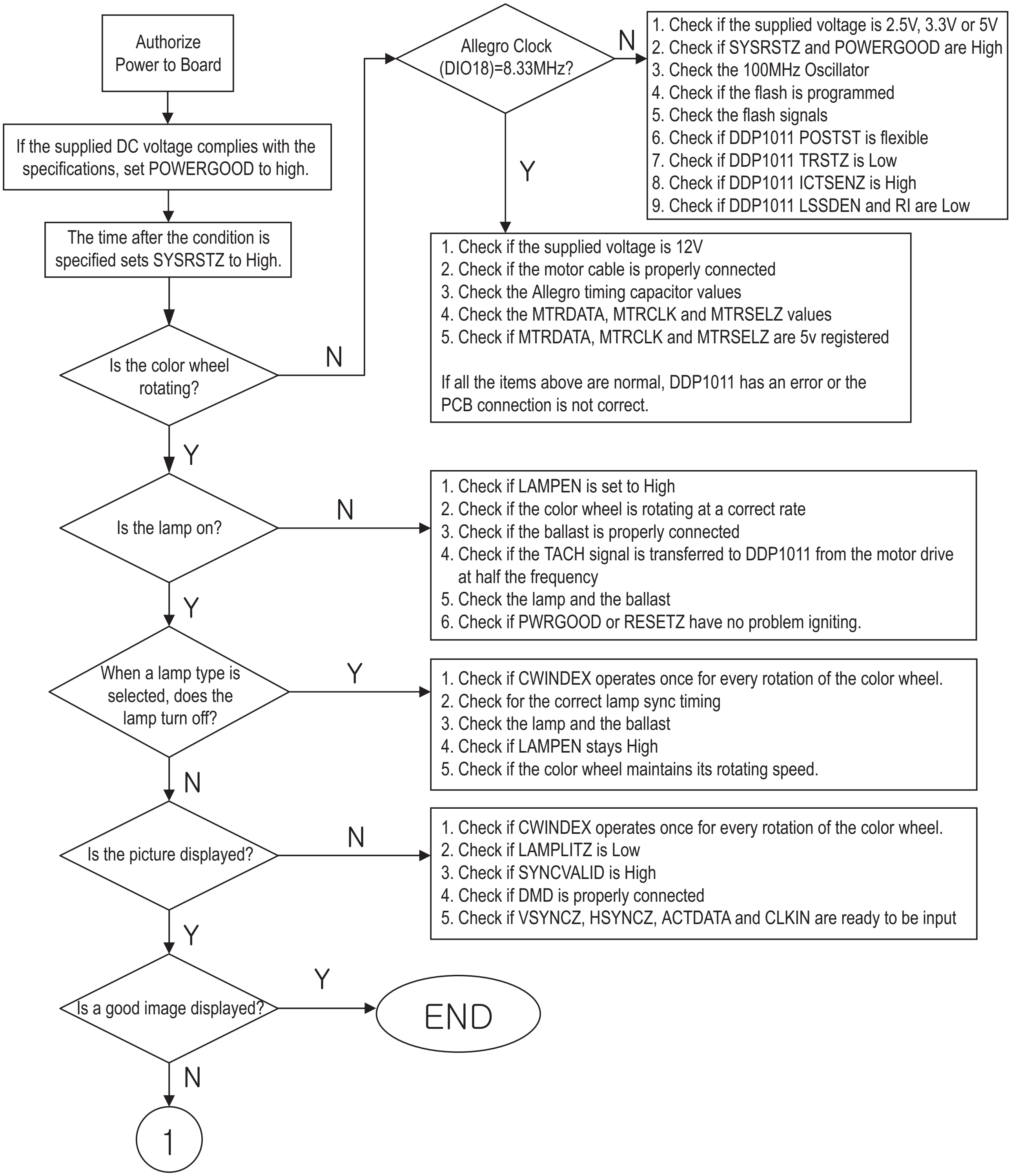



File Edit Vertical Horiz/Acq Trig Display Cursors Measure Math Utilities Help
Tek Stopped 27 Acqs 11 Dec 04 17:04:27
Buttons
Curs1 Pos 6.6358ms
Curs2 Pos 12.168ms
t1: 6.636ms
t2: 12.17ms
Δt: 5.532ms
1/Δt: 180.8Hz
DtyCyc(C1) 94.6% Low signal amplitude
Freq(C1) 179.8Hz Low signal amplitude
Ampl(C1)* 3.52V Unstable histogram
Ch1 2.0V

※ DMD Board Check Diagram


D5V
TP507
TP508 TP509 TP510
R533 3.3K
OB_LAMPLITZ
TP511
slcon7p
CN504
BD818
CIC21J601NE
R537 270ohm
nLAMP_en
LAMP_RX
For Ballester by Philips
LAMP ENABLE
C511 100nF 50V MO
C512 100nF 50V MO
C513 10nF

6-3-3 DDP1011 Electronics Debugging Flow Diagram


Authorize Power to Board
If the supplied DC voltage complies with the specifications, set POWERGOOD to high.
The time after the condition is specified sets SYSRSTZ to High.
Is the color wheel rotating?
N
Allegro Clock (DIO18)=8.33MHz?
N
Y
Y
Is the lamp on?
N
Y
When a lamp type is selected, does the lamp turn off?
Y
N
Is the picture displayed?
N
Y
Is a good image displayed?
Y
END
N
1

1. Check if the supplied voltage is 2.5V, 3.3V or 5V
2. Check if SYSRSTZ and POWERGOOD are High
3. Check the 100MHz Oscillator
4. Check if the flash is programmed
5. Check the flash signals
6. Check if DDP1011 POSTST is flexible
7. Check if DDP1011 TRSTZ is Low
8. Check if DDP1011 ICTSENZ is High
9. Check if DDP1011 LSSDEN and RI are Low

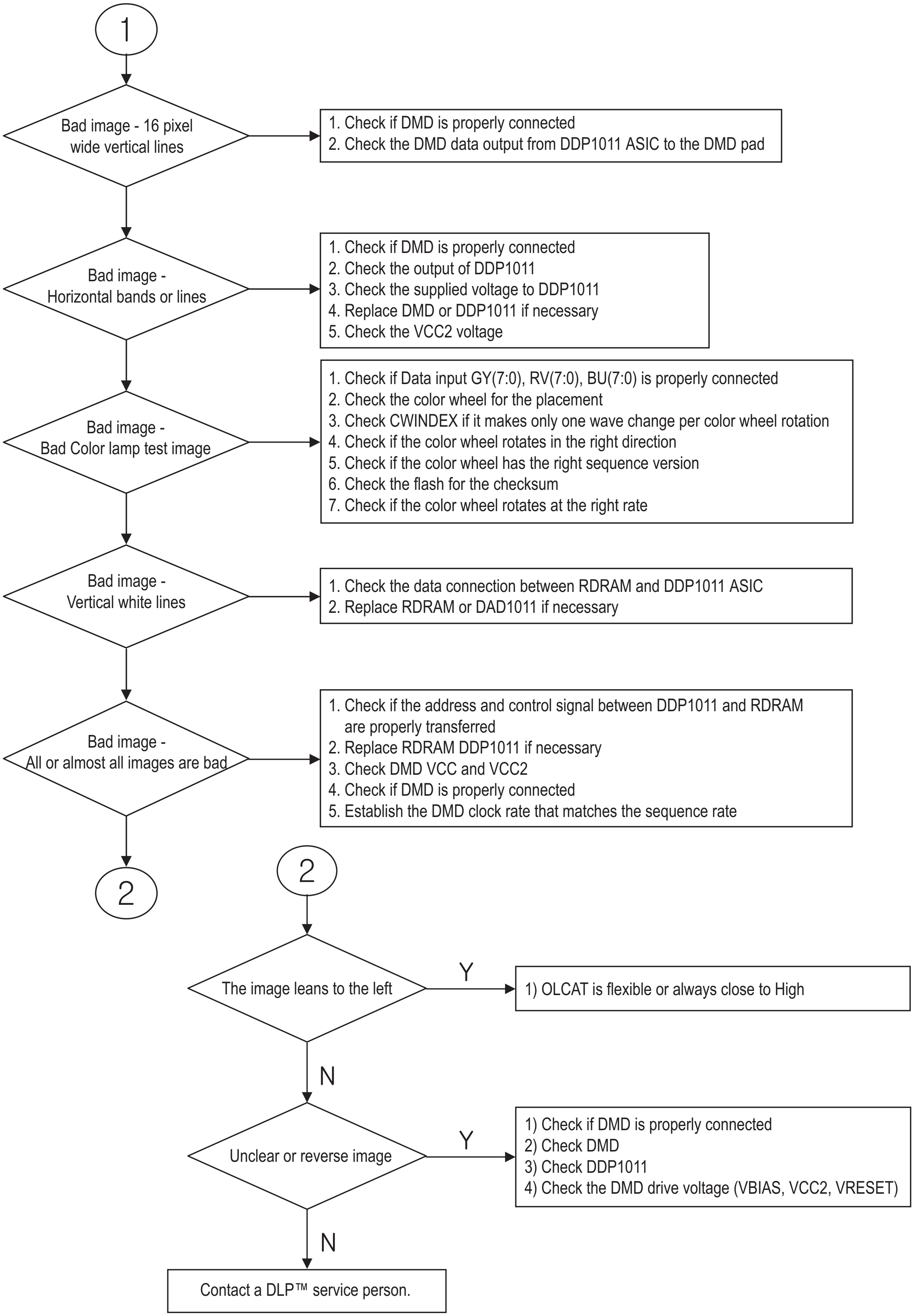
1. Check if the supplied voltage is 12V
2. Check if the motor cable is properly connected
3. Check the Allegro timing capacitor values
4. Check the MTRDATA, MTRCLK and MTRSELZ values
5. Check if MTRDATA, MTRCLK and MTRSELZ are 5v registered

If all the items above are normal, DDP1011 has an error or the PCB connection is not correct.

1. Check if LAMPEN is set to High
2. Check if the color wheel is rotating at a correct rate
3. Check if the ballast is properly connected
4. Check if the TACH signal is transferred to DDP1011 from the motor drive at half the frequency
5. Check the lamp and the ballast
6. Check if PWRGOOD or RESETZ have no problem igniting.

1. Check if CWINDEX operates once for every rotation of the color wheel.
2. Check for the correct lamp sync timing
3. Check the lamp and the ballast
4. Check if LAMPEN stays High
5. Check if the color wheel maintains its rotating speed.

1. Check if CWINDEX operates once for every rotation of the color wheel.
2. Check if LAMPLITZ is Low
3. Check if SYNCVALID is High
4. Check if DMD is properly connected
5. Check if VSYNCZ, HSYNCZ, ACTDATA and CLKIN are ready to be input



Bad image - 16 pixel wide vertical lines

1. Check if DMD is properly connected
2. Check the DMD data output from DDP1011 ASIC to the DMD pad

Bad image - Horizontal bands or lines

1. Check if DMD is properly connected
2. Check the output of DDP1011
3. Check the supplied voltage to DDP1011
4. Replace DMD or DDP1011 if necessary
5. Check the VCC2 voltage

Bad image - Bad Color lamp test image

1. Check if Data input GY(7:0), RV(7:0), BU(7:0) is properly connected
2. Check the color wheel for the placement
3. Check CWINDEX if it makes only one wave change per color wheel rotation
4. Check if the color wheel rotates in the right direction
5. Check if the color wheel has the right sequence version
6. Check the flash for the checksum
7. Check if the color wheel rotates at the right rate

Bad image - Vertical white lines

1. Check the data connection between RDRAM and DDP1011 ASIC
2. Replace RDRAM or DAD1011 if necessary

Bad image - All or almost all images are bad

1. Check if the address and control signal between DDP1011 and RDRAM are properly transferred
2. Replace RDRAM DDP1011 if necessary
3. Check DMD VCC and VCC2
4. Check if DMD is properly connected
5. Establish the DMD clock rate that matches the sequence rate

The image leans to the left

1) OLCAT is flexible or always close to High

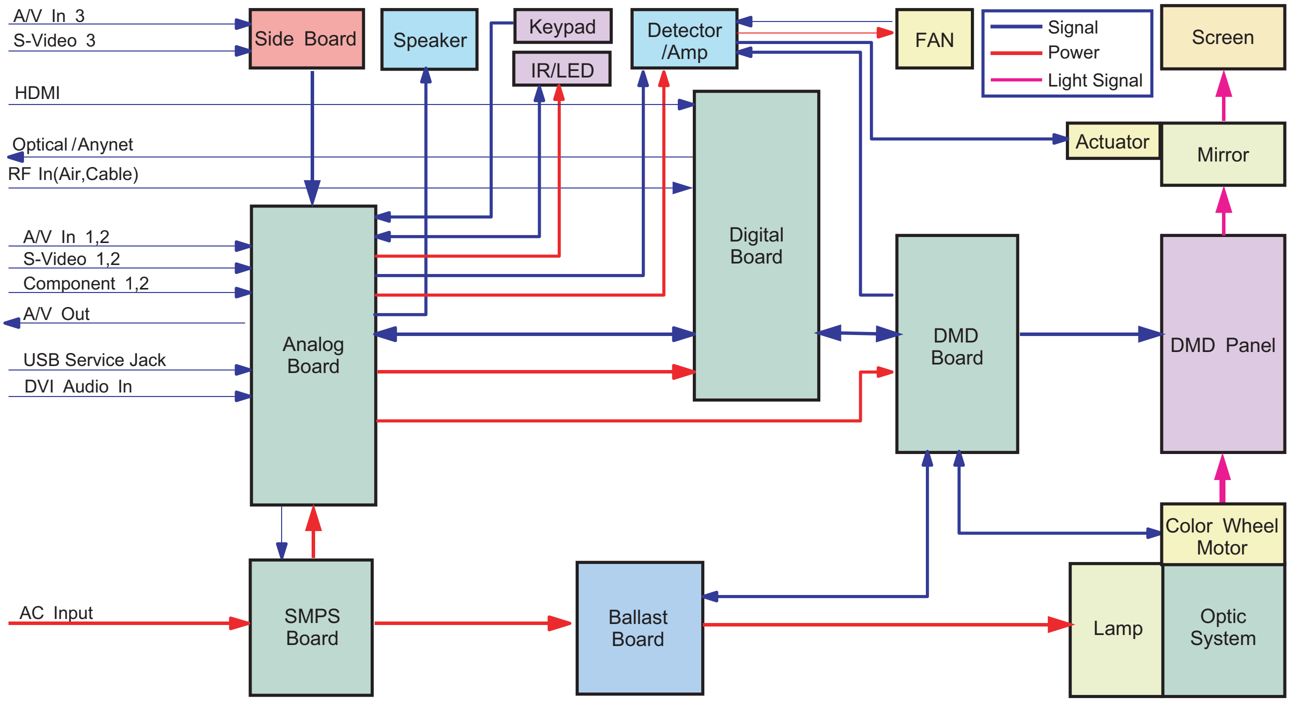
Unclear or reverse image

1) Check if DMD is properly connected
2) Check DMD
3) Check DDP1011
4) Check the DMD drive voltage (VBIAS, VCC2, VRESET)

Contact a DLP™ service person.

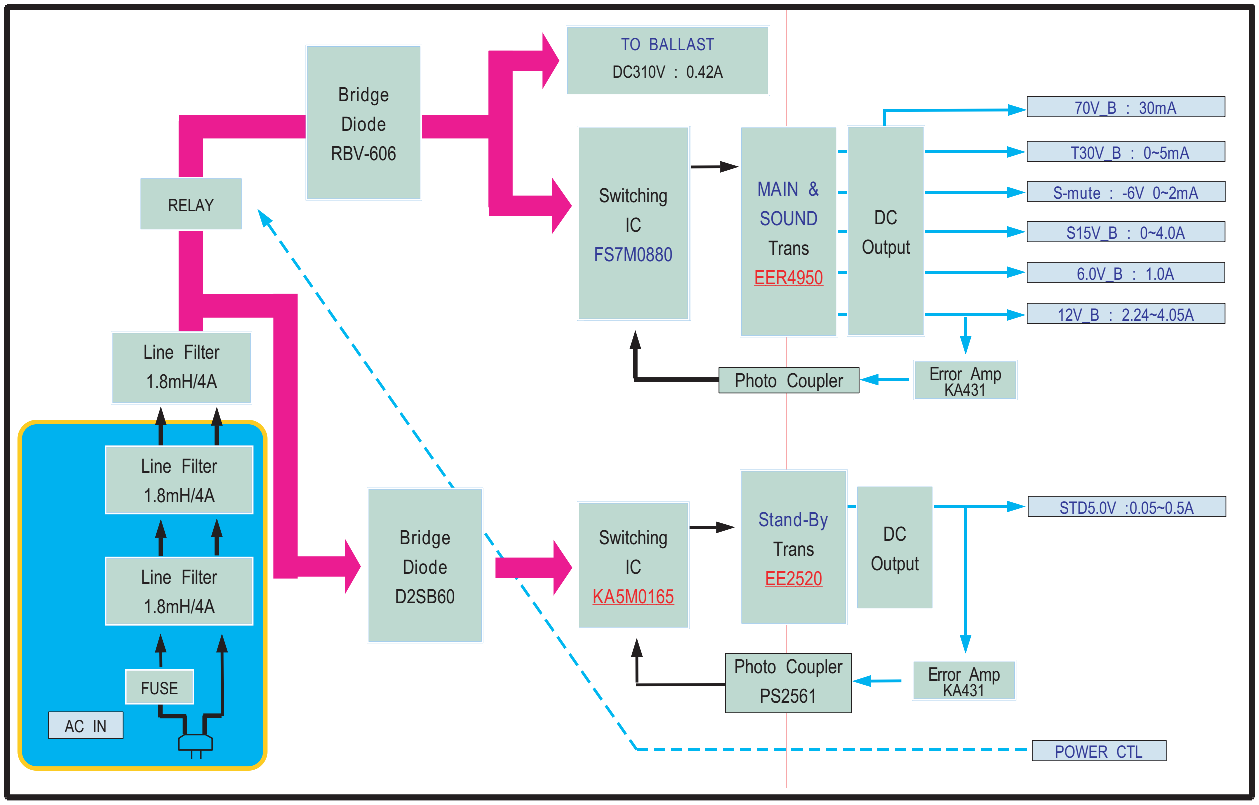
7. Block Diagram

7-1 Overall Block Diagram

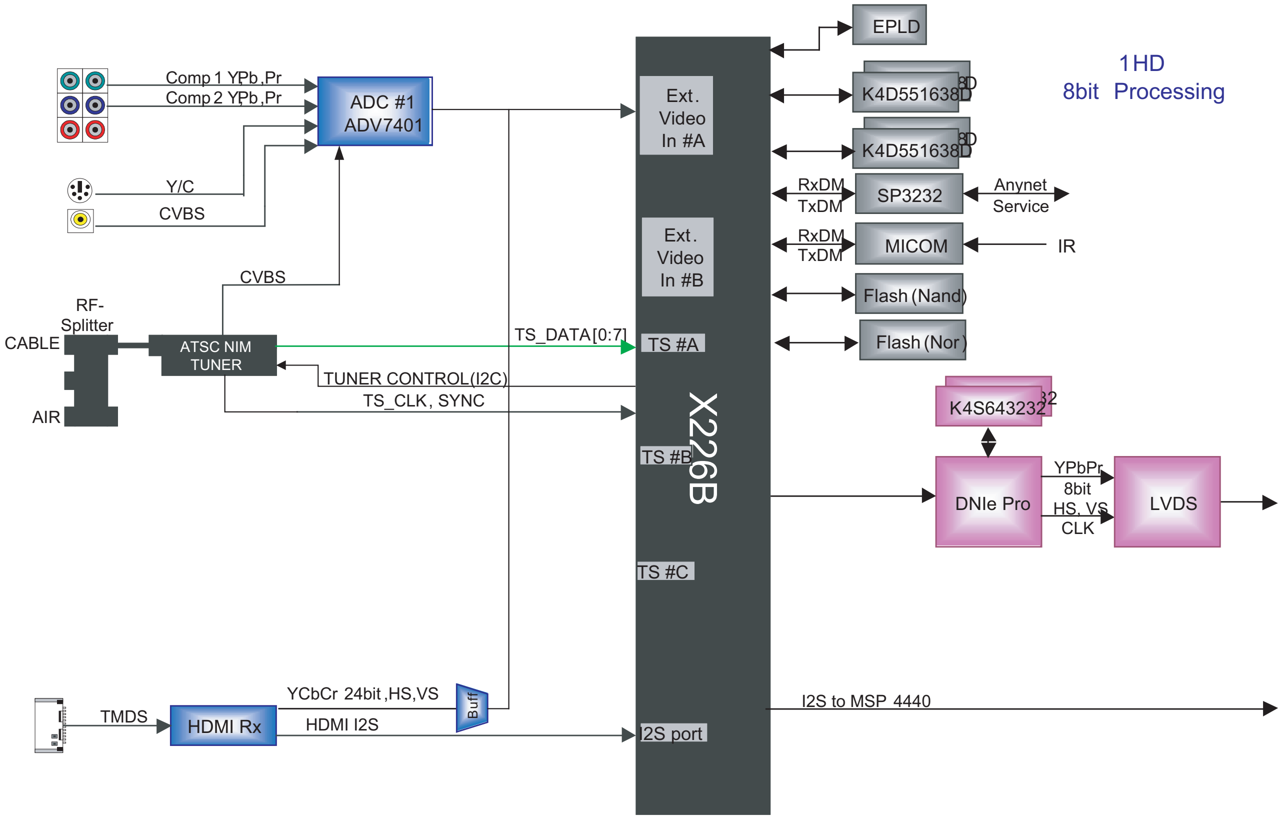

A/V In 3
S-Video 3
Side Board
Speaker
Keypad
IR/LED
Detector /Amp
FAN
Signal
Power
Light Signal
Screen
HDMI
Optical /Anynet
RF In(Air,Cable)
Actuator
Mirror
Digital Board
A/V In 1,2
S-Video 1,2
Component 1,2
A/V Out
USB Service Jack
DVI Audio In
Analog Board
DMD Board
DMD Panel
Color Wheel Motor
AC Input
SMPS Board
Ballast Board
Lamp
Optic System

7-2 Partial Block Diagram

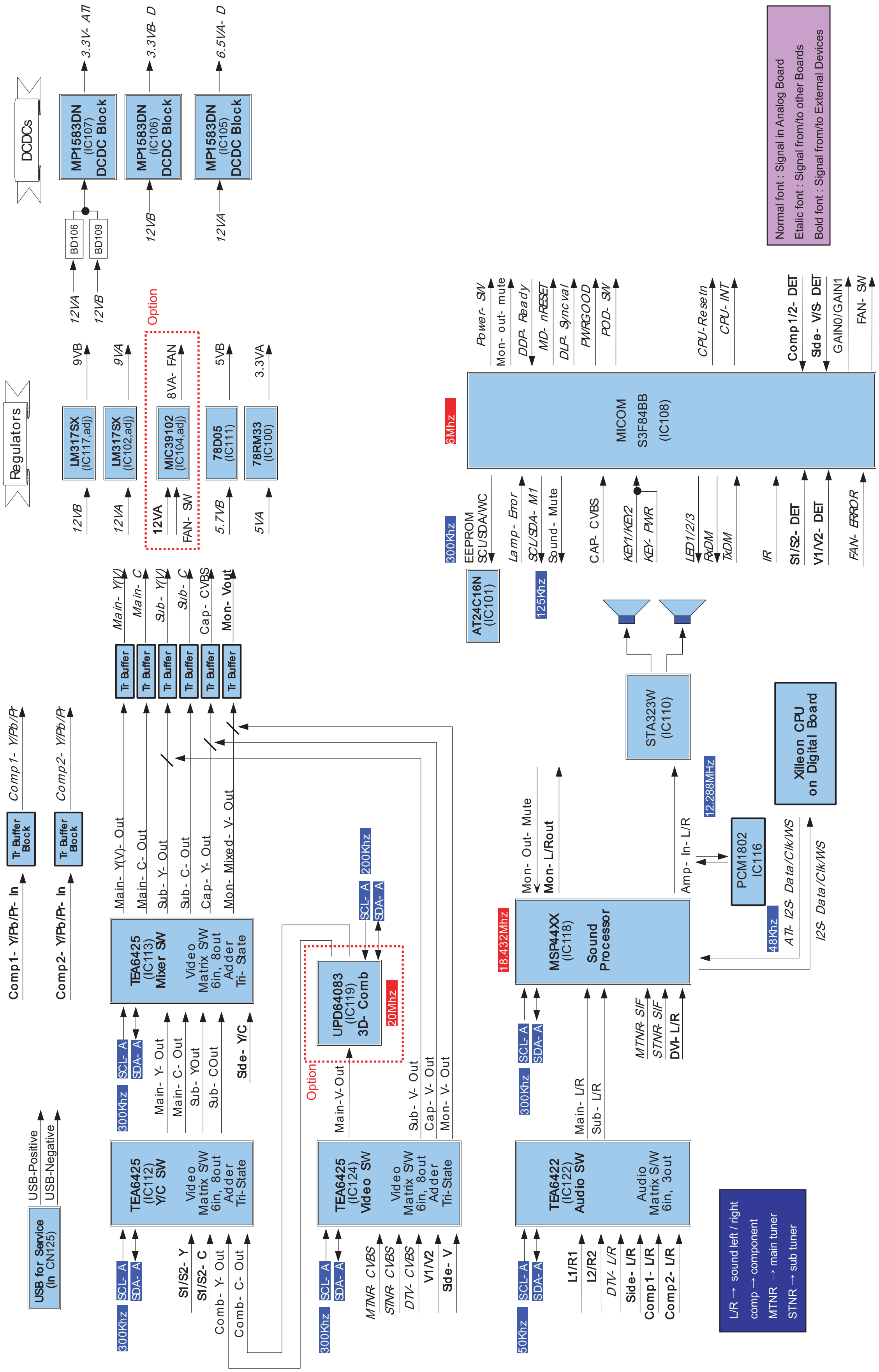
7-2-1 SMPS Block Diagram


TO BALLAST
DC310V : 0.42A
Bridge
Diode
RBV-606
RELAY
Switching
IC
FS7M0880
MAIN &
SOUND
Trans
EER4950
DC
Output
70V_B : 30mA
T30V_B : 0~5mA
S-mute : -6V 0~2mA
S15V_B : 0~4.0A
6.0V_B : 1.0A
12V_B : 2.24~4.05A
Photo Coupler
Error Amp
KA431
Line Filter
1.8mH/4A
Line Filter
1.8mH/4A
Line Filter
1.8mH/4A
FUSE
AC IN
Bridge
Diode
D2SB60
Switching
IC
KA5M0165
Stand-By
Trans
EE2520
DC
Output
STD5.0V :0.05~0.5A
Photo Coupler
PS2561
Error Amp
KA431
POWER CTL

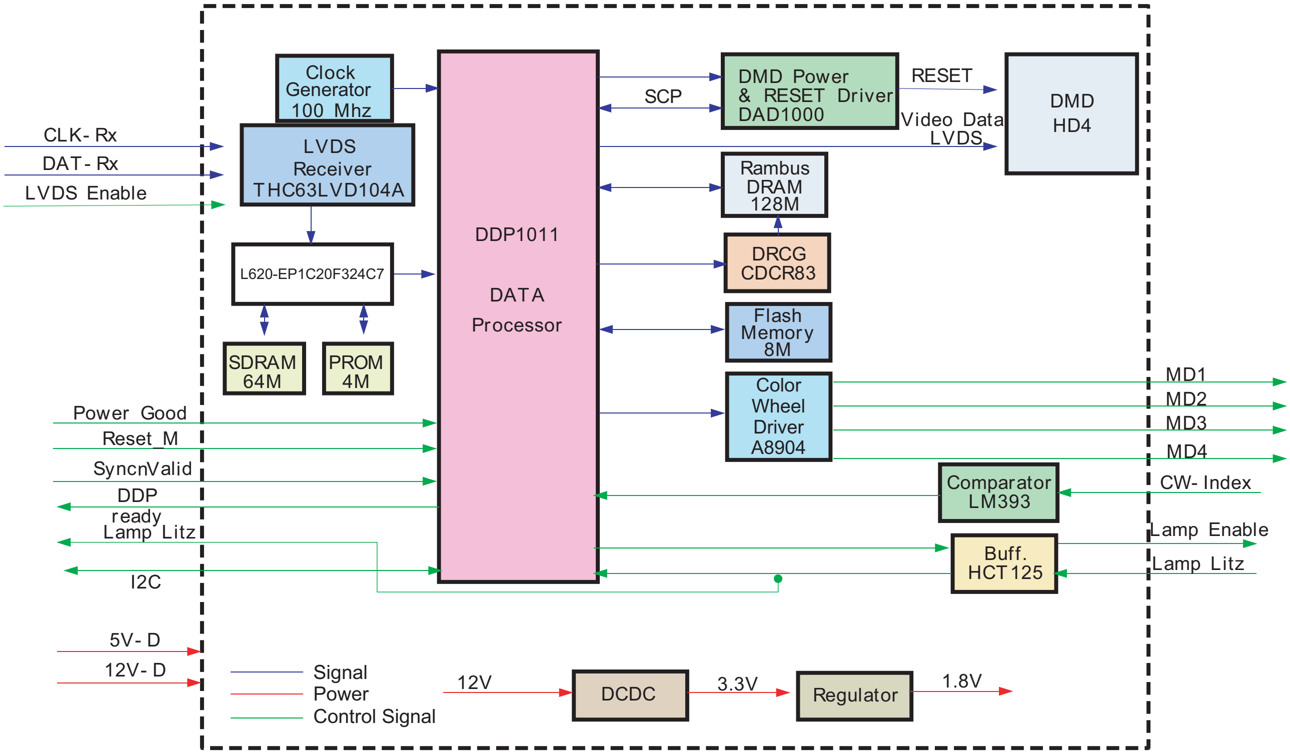
7-2-2 Digital Block Diagram


Comp 1 YPb,Pr
Comp 2 YPb,Pr
ADC #1
ADV7401
Y/C
CVBS
CVBS
RF-
Splitter
CABLE
AIR
ATSC NIM
TUNER
TS_DATA[0:7]
TUNER CONTROL(I2C)
TS_CLK, SYNC
TMDS
HDMI Rx
YCbCr 24bit,HS,VS
HDMI I2S
Buff
Ext.
Video
In #A
Ext.
Video
In #B
TS #A
TS #B
TS #C
I2S port
X226B
EPLD
K4D551638D
K4D551638D
1HD
8bit Processing
RxDM
TxDM
SP3232
Anynet
Service
RxDM
TxDM
MICOM
IR
Flash (Nand)
Flash (Nor)
K4S643232
DNIe Pro
YPbPr
8bit
HS, VS
CLK
LVDS
I2S to MSP 4440

7-2-3 Analog Block Diagram


DCDCs
MP1583DN (IC107) DCDC Block
MP1583DN (IC106) DCDC Block
MP1583DN (IC105) DCDC Block
3.3V- ATI
3.3VB- D
6.5VA- D
BD106
BD109
12VA
12VB
Regulators
LM317SX (IC117,adj)
LM317SX (IC102,adj)
MIC39102 (IC104,adj)
78D05 (IC111)
78RM33 (IC100)
9VB
9VA
8VA- FAN
5VB
3.3VA
12VA
FAN- SW
5.7VB
5VA
Option
Comp1- Y/Pb/Pr- In
Tr Buffer Block
Comp1- Y/Pb/Pr
Comp2- Y/Pb/Pr- In
Comp2- Y/Pb/Pr
USB for Service (in CN125)
USB-Positive
USB-Negative
TEA6425 (IC112) Y/C SW
Video Matrix S/W 6in, 8out Adder Tri-State
300Khz
SCL- A
SDA- A
S1/S2- Y
S1/S2- C
Comb- Y- Out
Comb- C- Out
Main- Y- Out
Main- C- Out
Sub- YOut
Sub- COut
Side- Y/C
TEA6425 (IC113) Mixer SW
Main- Y(V)- Out
Main- C- Out
Sub- Y- Out
Sub- C- Out
Cap- Y- Out
Mon- Mixed- V- Out
Tr Buffer
Main- Y(V)
Main- C
Sub- Y(V)
Sub- C
Cap- CVBS
Mon- Vout
TEA6425 (IC124) Video SW
MTNR- CVBS
STNR- CVBS
DTV- CVBS
V1/V2
Side- V
Main-V-Out
Sub- V- Out
Cap- V- Out
Mon- V- Out
UPD64083 (IC119) 3D- Comb
20Mhz
200Khz
TEA6422 (IC122) Audio SW
Audio Matrix S/W 6in, 3out
50Khz
L1/R1
L2/R2
DTV- L/R
Side- L/R
Comp1- L/R
Comp2- L/R
Main- L/R
Sub- L/R
MSP44XX (IC118) Sound Processor
18.432Mhz
MTNR- SIF
STNR- SIF
DVI- L/R
Mon- Out- Mute
Mon- L/Rout
Amp- In- L/R
PCM1802 IC116
48Khz
ATI- I2S- Data/Clk/WS
I2S- Data/Clk/WS
12.288MHz
STA323W (IC110)
Xilleon CPU on Digital Board
AT24C16N (IC101)
EEPROM SCL/SDA/WC
300Khz
125Khz
6Mhz
MICOM S3F84BB (IC108)
Lamp- Error
SCL/SDA- M1
Sound- Mute
CAP- CVBS
KEY1/KEY2
KEY- PWR
LED1/2/3
RxDM
TxDM
IR
S1/S2- DET
V1/V2- DET
FAN- ERROR
Power- SW
Mon- out- mute
DDP- Ready
MD- nRESET
DLP- Syncval
PWRGOOD
POD- SW
CPU-Resetn
CPU- INT
Comp1/2- DET
Side- V/S- DET
GAIN0/GAIN1
FAN- SW
Normal font : Signal in Analog Board
Etalic font : Signal from/to other Boards
Bold font : Signal from/to External Devices
L/R → sound left / right
comp → component
MTNR → main tuner
STNR → sub tuner

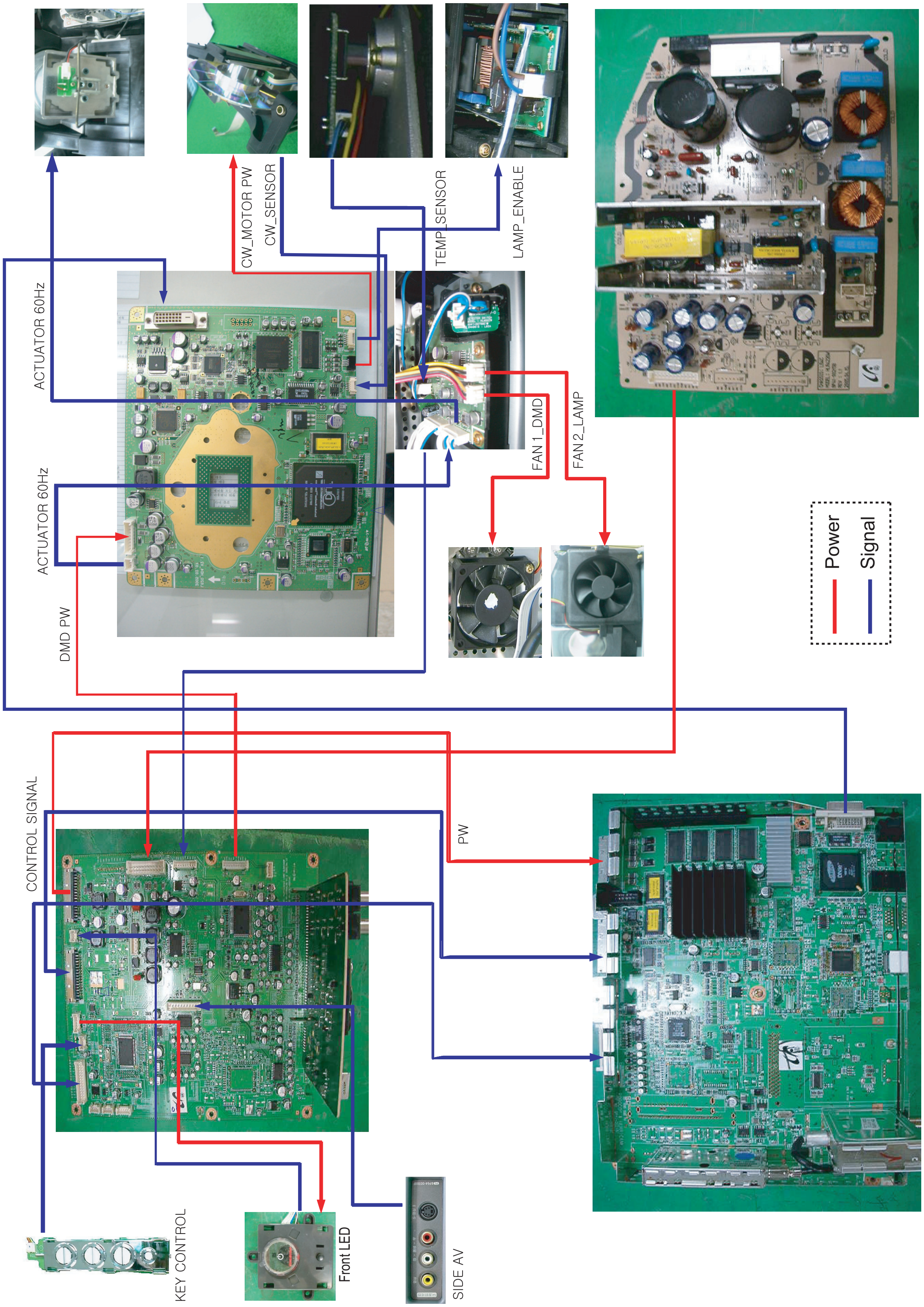
7-2-4 DMD Block Diagram


Clock
Generator
100 Mhz
CLK- Rx
DAT- Rx
LVDS Enable
LVDS
Receiver
THC63LVD104A
L620-EP1C20F324C7
SDRAM
64M
PROM
4M
DDP1011
DATA
Processor
SCP
DMD Power
& RESET Driver
DAD1000
RESET
Video Data
LVDS
DMD
HD4
Rambus
DRAM
128M
DRCG
CDCR83
Flash
Memory
8M
Color
Wheel
Driver
A8904
MD1
MD2
MD3
MD4
Comparator
LM393
CW- Index
Buff.
HCT125
Lamp Enable
Lamp Litz
Power Good
Reset_M
SyncnValid
DDP
ready
Lamp Litz
I2C
5V- D
12V- D
Signal
Power
Control Signal
12V
DCDC
3.3V
Regulator
1.8V

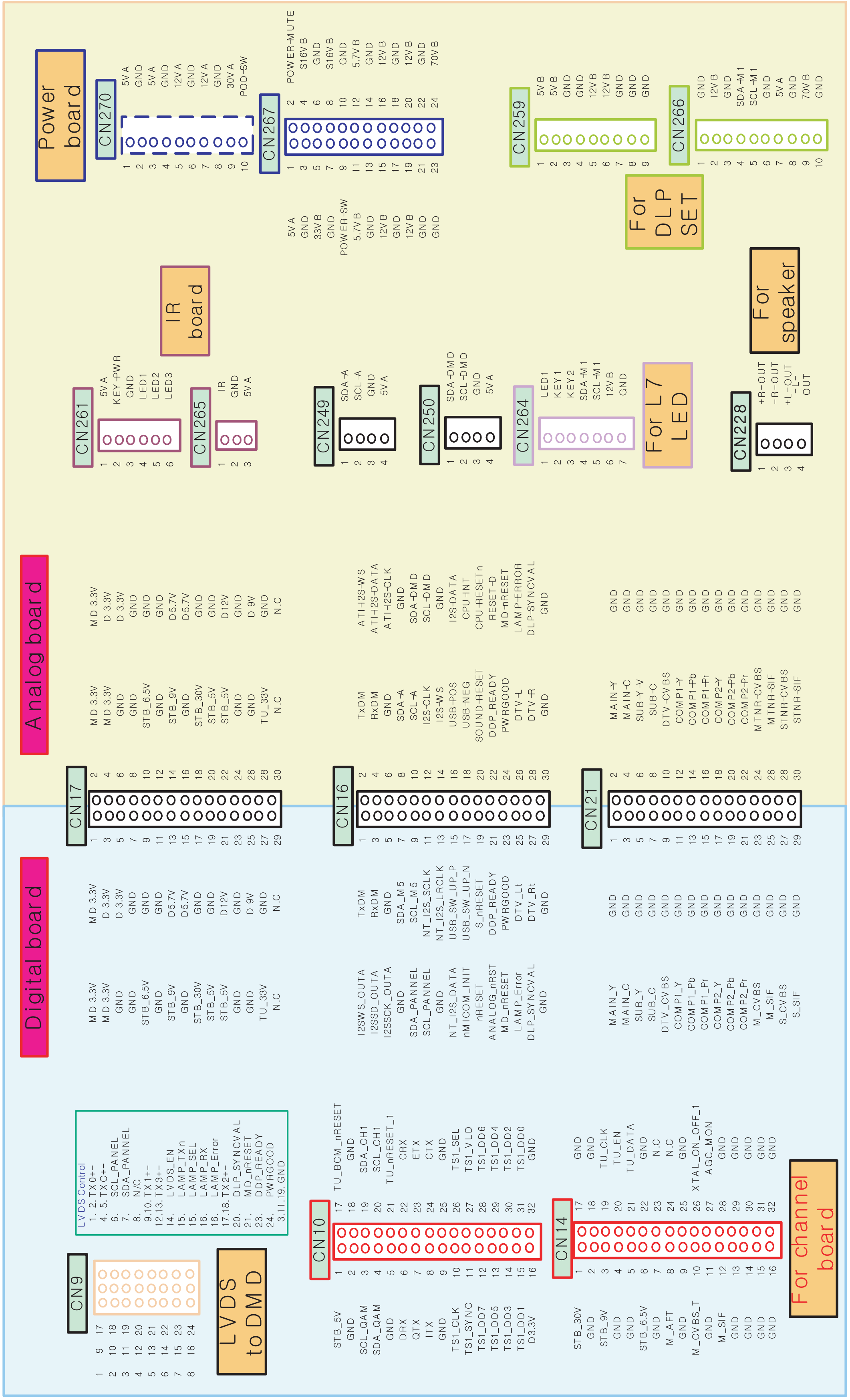
MEMO

8. Wiring Diagram

8-1 Overall Wiring


ACTUATOR 60Hz
CW_MOTOR PW
CW_SENSOR
TEMP_SENSOR
LAMP_ENABLE
FAN1_DMD
FAN2_LAMP
ACTUATOR 60Hz
DMD PW
CONTROL SIGNAL
PW
KEY CONTROL
Front LED
SIDE AV
🟥 Power
🟦 Signal

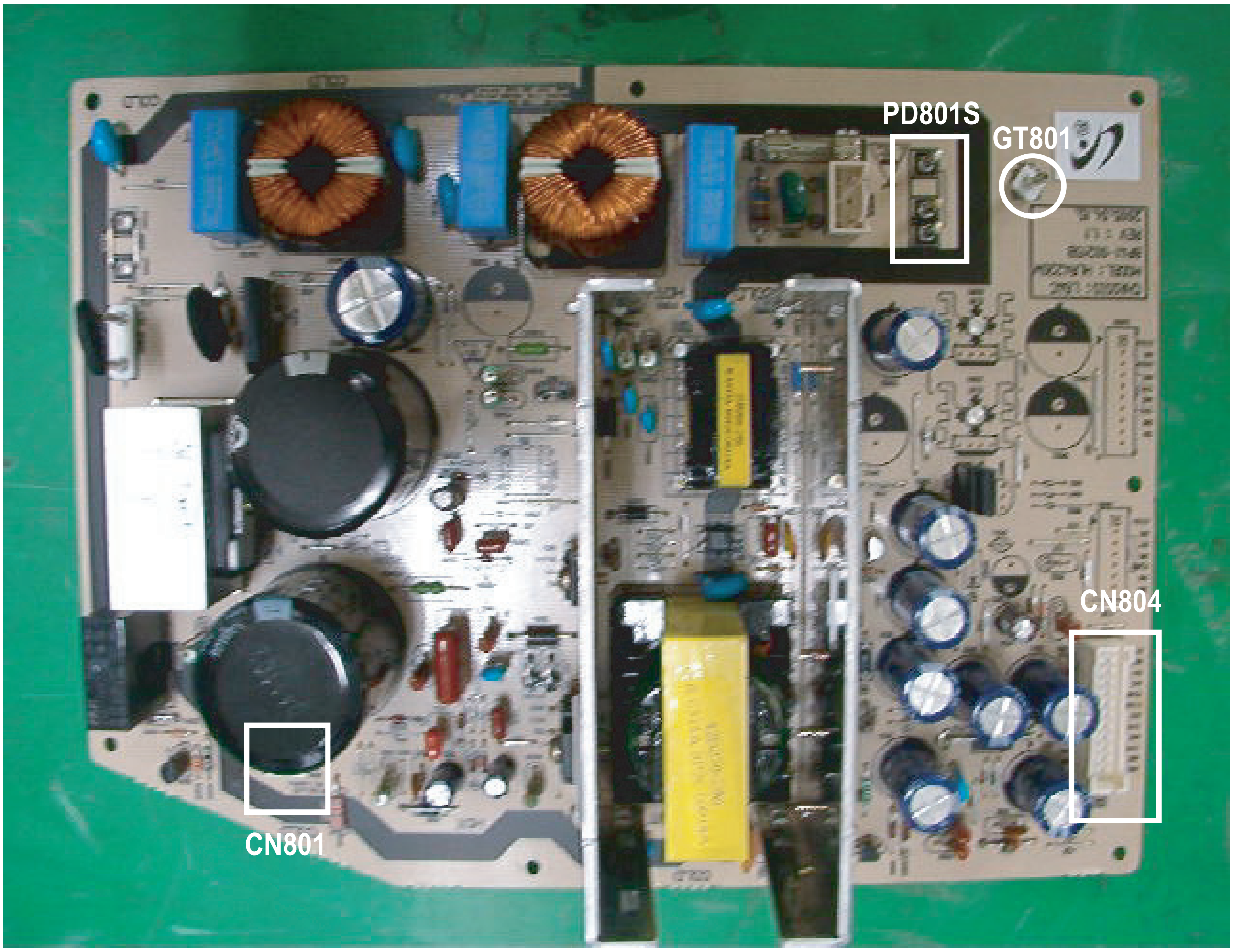
8-2 Connection between Analog and Digital Board


Power board
CN270
1 5VA
2 GND
3 5VA
4 GND
5 12VA
6 GND
7 12VA
8 GND
9 30VA
10 POD-SW
CN267
1 5VA
2 POWER-MUTE
3 GND
4 S16VB
5 33VB
6 GND
7 GND
8 S16VB
9 POWER-SW
10 GND
11 5.7VB
12 5.7VB
13 GND
14 GND
15 12VB
16 12VB
17 GND
18 GND
19 12VB
20 12VB
21 GND
22 GND
23 GND
24 70VB
CN259
1 5VB
2 5VB
3 GND
4 GND
5 12VB
6 12VB
7 GND
8 GND
9 GND
CN266
1 GND
2 12VB
3 GND
4 SDA-M1
5 SCL-M1
6 GND
7 5VA
8 GND
9 70VB
10 GND
For DLP SET
IR board
CN261
1 5VA
2 KEY-PWR
3 GND
4 LED1
5 LED2
6 LED3
CN265
1 IR
2 GND
3 5VA
CN249
1 SDA-A
2 SCL-A
3 GND
4 5VA
CN250
1 SDA-DMD
2 SCL-DMD
3 GND
4 5VA
CN264
1 LED1
2 KEY1
3 KEY2
4 SDA-M1
5 SCL-M1
6 12VB
7 GND
For L7 LED
For speaker
CN228
1 +R-OUT
2 -R-OUT
3 +L-OUT
4 -L-OUT
Analog board
CN17
1 MD 3.3V
2 MD 3.3V
3 MD 3.3V
4 D 3.3V
5 GND
6 D 3.3V
7 GND
8 GND
9 STB_6.5V
10 GND
11 GND
12 GND
13 STB_9V
14 D5.7V
15 GND
16 D5.7V
17 STB_30V
18 GND
19 STB_5V
20 GND
21 STB_5V
22 D12V
23 GND
24 GND
25 GND
26 D 9V
27 TU_33V
28 GND
29 N.C
30 N.C
CN16
1 TxDM
2 ATI-I2S-WS
3 RxDM
4 ATI-I2S-DATA
5 GND
6 ATI-I2S-CLK
7 SDA-A
8 GND
9 SCL-A
10 SDA-DMD
11 I2S-CLK
12 SCL-DMD
13 I2S-WS
14 GND
15 USB-POS
16 I2S-DATA
17 USB-NEG
18 CPU-INT
19 SOUND-RESET
20 CPU-RESETn
21 DDP_READY
22 RESET-D
23 PWRGOOD
24 MD-nRESET
25 DTV-L
26 LAMP-ERROR
27 DTV-R
28 DLP-SYNCVAL
29 GND
30 GND
CN21
1 MAIN-Y
2 GND
3 MAIN-C
4 GND
5 SUB-Y-V
6 GND
7 SUB-C
8 GND
9 DTV-CVBS
10 GND
11 COMP1-Y
12 GND
13 COMP1-Pb
14 GND
15 COMP1-Pr
16 GND
17 COMP2-Y
18 GND
19 COMP2-Pb
20 GND
21 COMP2-Pr
22 GND
23 MTNR-CVBS
24 GND
25 MTNR-SIF
26 GND
27 STNR-CVBS
28 GND
29 STNR-SIF
30 GND
Digital board
CN17
MD 3.3V
MD 3.3V
MD 3.3V
D 3.3V
GND
D 3.3V
GND
GND
STB_6.5V
GND
GND
GND
STB_9V
D5.7V
GND
D5.7V
STB_30V
GND
STB_5V
GND
STB_5V
D12V
GND
GND
GND
D 9V
TU_33V
GND
N.C
N.C
CN16
I2SWS_OUTA
TxDM
I2SSD_OUTA
RxDM
I2SSCK_OUTA
GND
GND
SDA_M5
SDA_PANNEL
SCL_M5
SCL_PANNEL
NT_I2S_SCLK
GND
NT_I2S_LRCLK
NT_I2S_DATA
USB_SW_UP_P
nMICOM_INIT
USB_SW_UP_N
nRESET
S_nRESET
ANALOG_nRST
DDP_READY
MD_nRESET
PWRGOOD
LAMP_Error
DTV_Lt
DLP_SYNCVAL
DTV_Rt
GND
GND
CN21
MAIN_Y
GND
MAIN_C
GND
SUB_Y
GND
SUB_C
GND
DTV_CVBS
GND
COMP1_Y
GND
COMP1_Pb
GND
COMP1_Pr
GND
COMP2_Y
GND
COMP2_Pb
GND
COMP2_Pr
GND
M_CVBS
GND
M_SIF
GND
S_CVBS
GND
S_SIF
GND
LVDS Control
1. 2. TX0+-
4. 5. TXC+-
6. SCL_PANEL
7. SDA_PANNEL
8. N/C
9.10. TX1+-
12.13. TX3+-
14. LVDS_EN
15. LAMP_TXn
15. LAMP_SEL
15. LAMP_RX
16. LAMP_Error
17.18. TX2+-
20. DLP_SYNCVAL
21. MD_nRESET
23. DDP_READY
24. PWRGOOD
3.11.19. GND
CN9
1 9 17
2 10 18
3 11 19
4 12 20
5 13 21
6 14 22
7 15 23
8 16 24
LVDS to DMD
CN10
1 STB_5V
2 GND
3 SCL_QAM
4 SDA_QAM
5 GND
6 DRX
7 QTX
8 ITX
9 GND
10 TS1_CLK
11 TS1_SYNC
12 TS1_DD7
13 TS1_DD5
14 TS1_DD3
15 TS1_DD1
16 D3.3V
17 TU_BCM_nRESET
18 GND
19 SDA_CH1
20 SCL_CH1
21 TU_nRESET_1
22 CRX
23 ETX
24 CTX
25 GND
26 TS1_SEL
27 TS1_VLD
28 TS1_DD6
29 TS1_DD4
30 TS1_DD2
31 TS1_DD0
32 GND
CN14
1 STB_30V
2 GND
3 STB_9V
4 GND
5 GND
6 STB_6.5V
7 GND
8 M_AFT
9 GND
10 M_CVBS_T
11 GND
12 M_SIF
13 GND
14 GND
15 GND
16 GND
17 GND
18 GND
19 TU_CLK
20 TU_EN
21 TU_DATA
22 GND
23 N.C
24 N.C
25 GND
26 XTAL_ON_OFF_1
27 AGC_MON
28 GND
29 GND
30 GND
31 GND
32 GND
For channel board

9. PCB Diagram

9-1 Power Board

9-1-1 Assy Power Board



■ DC Power Supply
(Supplies DC power to the analog PCB. The analog board is responsible for the power supply to the digital/DMD board.)

9-1-2 Names & Roles of Key Parts

⋆ CN801 : Supplies power (DC330V± 10%) to the ballast.
⋆ GT801 : Anti-lightning wire connected to the digital board. The anti-lightning wire should be installed for safety purposes.
⋆ PD801S : Connecting with power cable.

9-1-3 Power Board Connector Pin

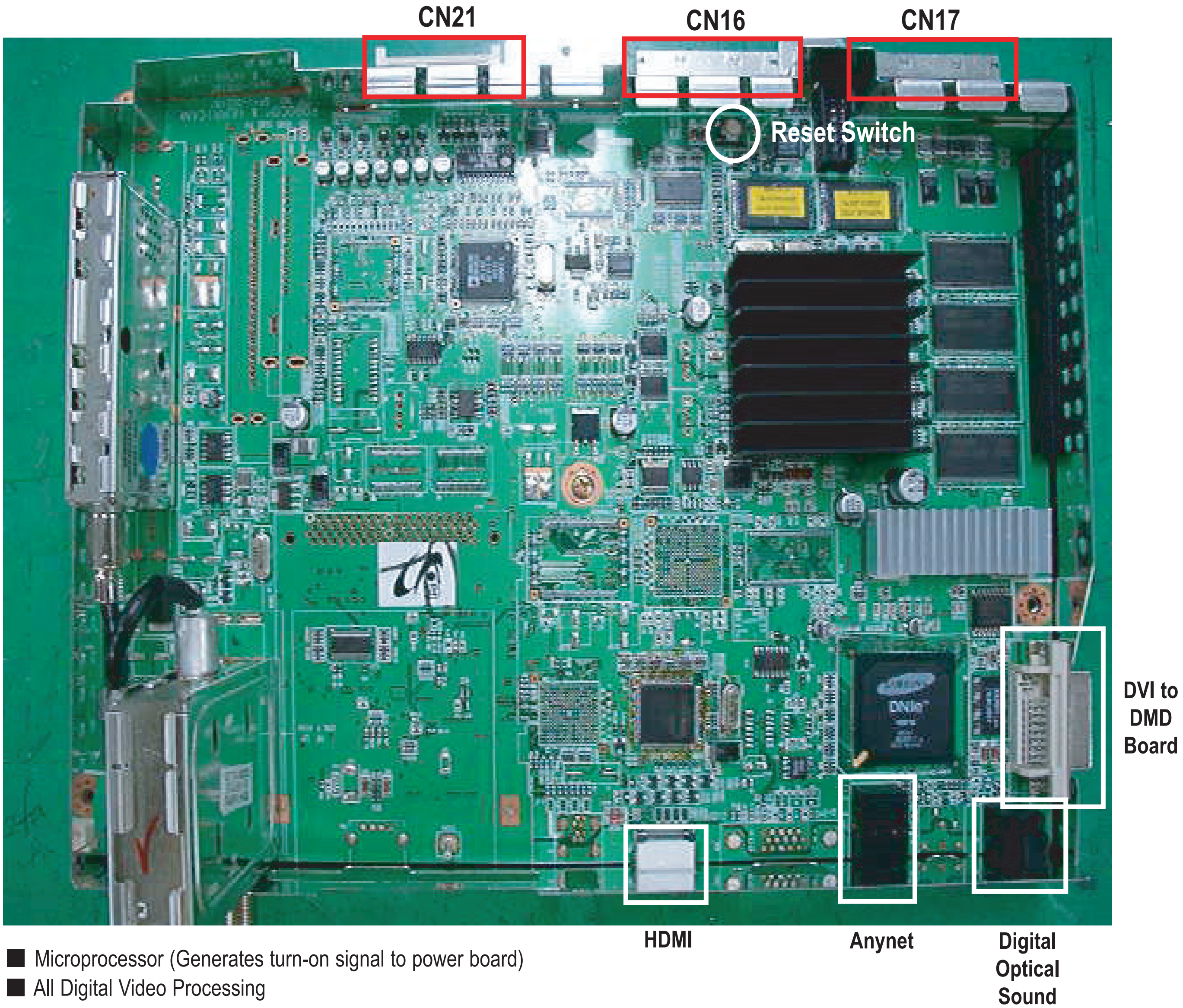
CN804

Connecting Power to Analog Board

Pin Name	PIN No.		Pin Name
STD 5V	1	2	S-MUTE
GND	3	4	S14.5V
33V	5	6	GND
GND	7	8	S14.5V
POWER-SW	9	10	GND
5.5VB	11	12	5.5VB
GND	13	14	GND
12VB	15	16	12VB
GND	17	18	GND
12VB	19	20	12VB
GND	21	22	GND
GND	23	24	80VB

9-2 Digital Board

9-2-1 Assy Digital Board


CN21
CN16
CN17
Reset Switch
DVI to DMD Board
HDMI
Anynet
Digital Optical Sound

- Microprocessor (Generates turn-on signal to power board)
- All Digital Video Processing
- OSD / Menu
- Reset Switch

9-2-2 Names & Roles of Key Parts

⋆ High Definition Multimedia Interface :
The HDMI^{TM} (High Definition Multimedia Interface) supports uncompressed standard and high definition digital video formats and existing digital multi-channel audio formats.

⋆ G-Link :
This jack is used by the TV Guide On screen system of the TV to control external analog devices such as VCRs, DVDs, cable boxes, satellite receivers and audio receivers.

⋆ D-Net(IEEE1394) :
These jacks allow the TV to connect to external IEEE 1394 digital products by means of a single cable.

9-2-3 Digital Board Connector Pin

CN16
Connecting the control signal between Digital & Analog Board

Pin Name	PIN No.		Pin Name
I2SWS_OUTA	1	2	TxDM
I2SSD_OUTA	3	4	RxDM
I2SCLK_OUTA	5	6	GND
GND	7	8	SDA_M5
SDA_PANNEL	9	10	SCL_M5
SCL_PANNEL	11	12	NT_I2S_SCLK
GND	13	14	NT_I2S_LRCLK
NT_I2S_DATA	15	16	USB_SW_UP_P
nMICOM_INIT	17	18	USB_SW_UP_N
nRESET	19	20	S_nRESET
ANALOG-nRST	21	22	DDP_READY
MD-nRESET	23	24	PWRGOOD
LAMP-ERROR	25	26	DTV_Lt
DLP-SYNCVAL	27	28	DTV_Rt
GND	29	30	GND

CN17
Connecting Power to the Digital Board

Pin Name	PIN No.		Pin Name
MD3.3V	1	2	MD3.3V
MD3.3V	3	4	D3.3V
GND	5	6	D3.3V
GND	7	8	GND
STB_6.5V	9	10	GND
GND	11	12	GND
STB_9V	13	14	D5.7V
GND	15	16	D5.7V
STB_30V	17	18	GND
STB_5V	19	20	GND
5VA	21	22	D12V
GND	23	24	GND
GND	25	26	D9V
33V	27	28	GND

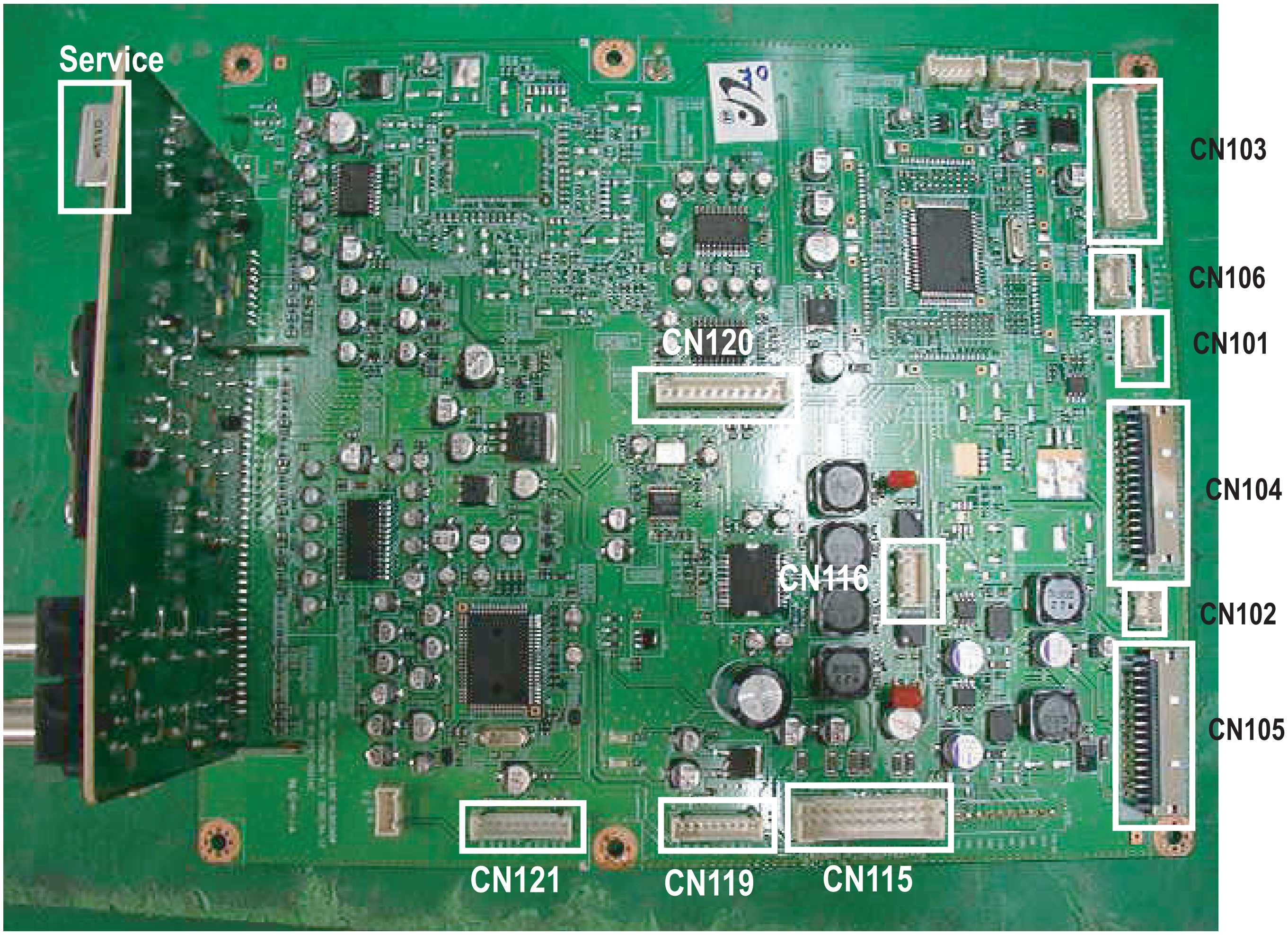
CN21

Connecting the Aduio/Video signal from the rear input terminal

Pin Name	PIN No.		Pin Name
MAIN_Y	1	2	GND
MAIN_C	3	4	GND
SUB_Y	5	6	GND
SUB_C	7	8	GND
DTV_CVBS	9	10	GND
COMP1_Y	11	12	GND
COMP1_Pb	13	14	GND
COMP1_Pr	15	16	GND
COMP2_Y	17	18	GND
COMP2_Pb	19	20	GND
COMP2_Pr	21	22	GND
M-CVBS	23	24	GND
M-SIF	25	26	GND
S-CVBS	27	28	GND
S-SIF	29	30	GND

9-3 Analog Board

9-3-1 Assy Analog Board



- ■ Distributes supply voltage from the Power Board to Digital Board and DMD Board.
- ■ Transfers Turn-on Command to Digital and Power Board.
- ■ Encompasses the majority of the Audio Circuit
- ■ Analog Video Switching / Processing
- ■ Analog Audio Switching / Processing

9-3-2 Names & Roles of Key Parts

⋆ CN121 : Connected to the actuator board
⋆ CN119 : Connected to the DMD board
⋆ CN115 : Connected to the power board - receives the second power source generated on the power board.
⋆ CN105 : Sends the power source from the analog to the digital board.
⋆ CN104 : This is a control signal terminal that connects between the analog and digital boards.
⋆ CN103 : This is an AV signal terminal that connects between the analog and digital boards.

9-3-3 Analog Board Connector Pin

CN119
Connecting Power to the DMD

Pin No.	Pin Name
1	5VB
2	5VB
3	GND
4	GND
5	12VB
6	12VB
7	GND
8	GND
9	GND

CN106
Connecting Side Buttons

Pin No.	Pin Name
1	GND
2	KEY1
3	KEY2
4	GND

CN105
Connecting Power to the Digital Board

Pin Name	PIN No.		Pin Name
3.3V-ATI	1	2	3.3V-ATI
3.3VB-D	3	4	3.3V-ATI
3.3VB-D	5	6	GND
GND	7	8	GND
GND	9	10	6.5VA-D
GND	11	12	GND
5.7VB	13	14	9VA
5.7VB	15	16	GND
GND	17	18	30VA
GND	19	20	5VA
12VB	21	22	5VA
GND	23	24	GND
9VB	25	26	GND
GND	27	28	33VB
GND	29	30	GND

CN123
For Debugging

Pin No.	Pin Name
1	SDA-A
2	SCL-A
3	GND
4	5VA

CN121
Connecting Power and the Control Signal to the Actuator Protection Board

Pin No.	Pin Name
1	GND
2	12VB
3	GND
4	SDA-M1
5	SCL-M1
6	GND
7	5VA
8	GND
9	70VB
10	GND

CN102
Connecting the IR signal

Pin No.	Pin Name
1	IR
2	GND
3	5VA

CN101
Connecting front LED indicators

Pin No.	Pin Name
1	5VA
2	KEY-PWR
3	GND
4	LED1
5	LED2
6	LED3

CN116

Connecting and transmitting Audio signal to Speaker

Pin No.	Pin Name
1	-L-OUT
2	+L-OUT
3	-R-OUT
4	+R-OUT

CN105

Connecting Power

Pin Name	PIN No.		Pin Name
5VA	1	2	POWER-MUTE
GND	3	4	S16VB
33VB	5	6	GND
GND	7	8	S16VB
POWER-SW	9	10	GND
5.7VB	11	12	5.7VB
GND	13	14	GND
12VB	15	16	12VB
GND	17	18	GND
12VB	19	20	12VB
GND	21	22	GND
GND	23	24	70VB

CN120

Transmitting Video Signal from Side Terminal

Pin No.	Pin Name
1	SIDE-Y
2	SIDE-C
3	GND
4	SIDE-V
5	GND
6	SIDE-L
7	GND
8	SIDE-R
9	GND
10	SIDE-SDET
11	SIDE-VDET

CN103

Connecting the Audio/Video signal from the rear input terminal

Pin Name	PIN No.		Pin Name
MAIN_Y	1	2	GND
MAIN_C	3	4	GND
SUB_Y_V	5	6	GND
SUB_C	7	8	GND
DTV_CVBS	9	10	GND
COMP1_Y	11	12	GND
COMP1_Pb	13	14	GND
COMP1_Pr	15	16	GND
COMP2_Y	17	18	GND
COMP2_Pb	19	20	GND
COMP2_Pr	21	22	GND
MTNR_CVBS	23	24	GND
MTNR_SIF	25	26	GND
STNR_CVBS	27	28	GND
STNR_SIF	29	30	GND

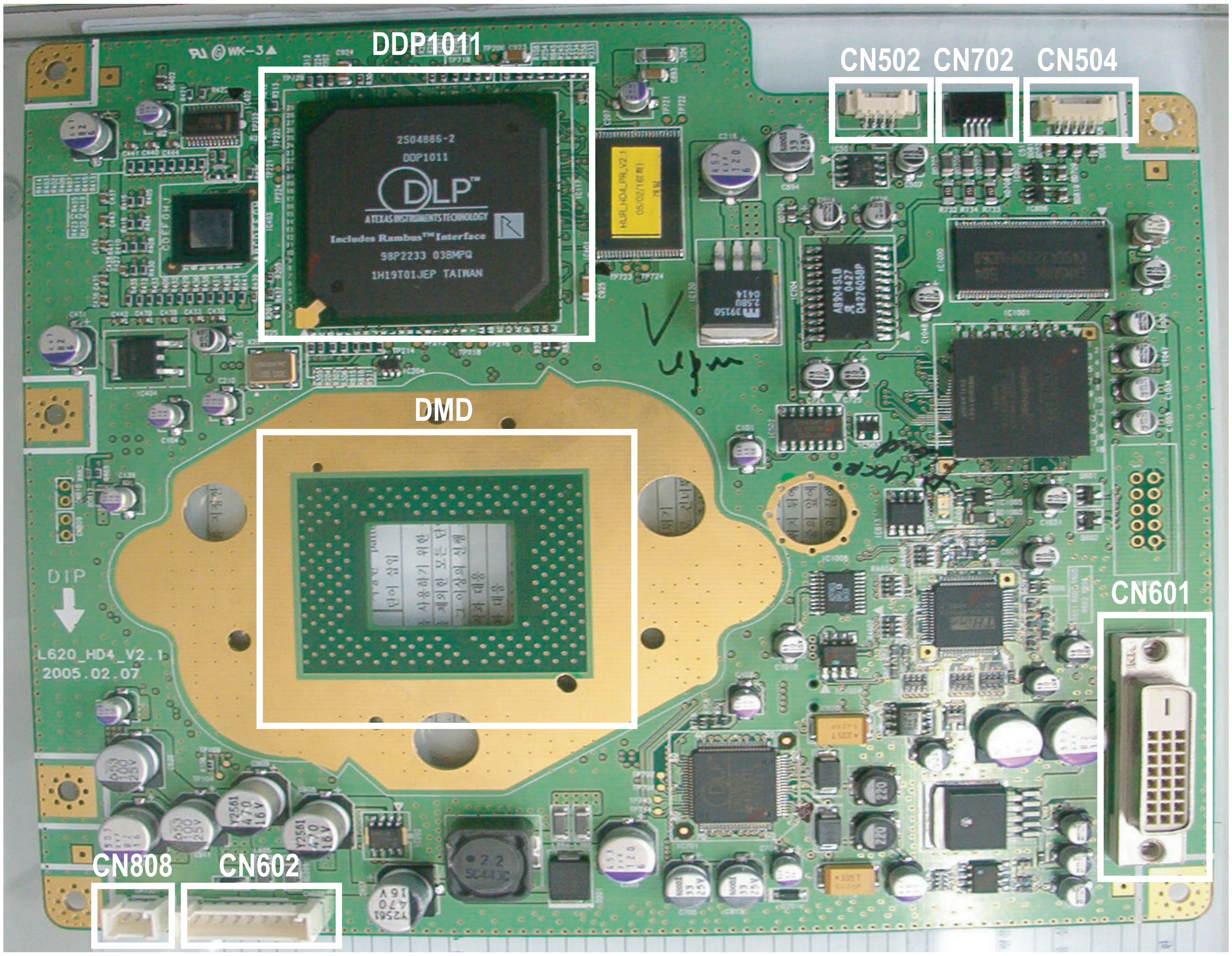
CN104

Connecting the control signal between Digital and Analog

Pin Name	PIN No.		Pin Name
TxDM	1	2	ATI-I2S-WS
RxDM	3	4	ATI-I2S-DATA
GND	5	6	STI-I2S-CLK
SDA_A	7	8	GND
SCL_A	9	10	SDA_DMD
I2SCLK	11	12	SCL_DMD
I2S_WS	13	14	GND
USB_POS	15	16	I2S_DATA
USB_NEG	17	18	CPU_INIT
SOUND_RESET	19	20	CPU_RESET
DDP_READY	21	22	RESET_D
PWRGOOD	23	24	MD_nRESET
DTV_L	25	26	LAMP_ERROR
DTV_R	27	28	DLP_SYNCVAL
GND	29	30	GND

9-4 DMD Board

9-4-1 Assy DMD Board



- Controls the lamp (ON/OFF)
- Drives the color wheel motor
- Drives the panel
- Controls the sensors

9-4-2 Names & Roles of Key Parts

* CN602 : This receives the power source from the analog board and communicates with the I2C.
* CN808 : This sends a 60Hz signal to the actuator board. The actuator board sends the signal to the actuator module.
* CN702 : This supplies the power to drive the color wheel.
* CN502 : This receives the color wheel rotating signals.
* CN504 : This sends signals to the ballast.
* CN601 : The DVD cable terminal. This receives the image data from the digital board.
* DMD PANEL : This is protected with a heat sink and fixtures.
* DDP1011 : This processes the DMD drive and the signals.

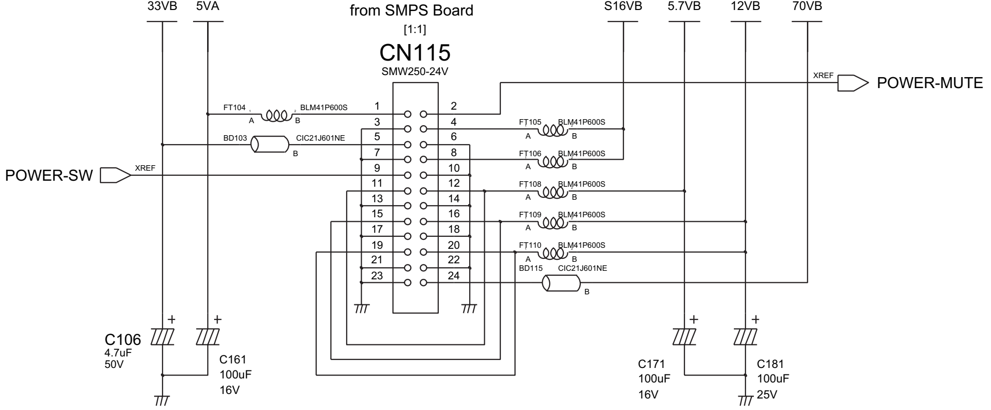
MEMO

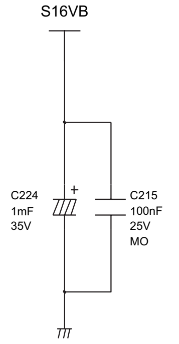
10. Schematic Diagram

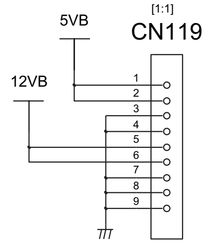
10-1 Analog Board

10-1-1 PowerSignal

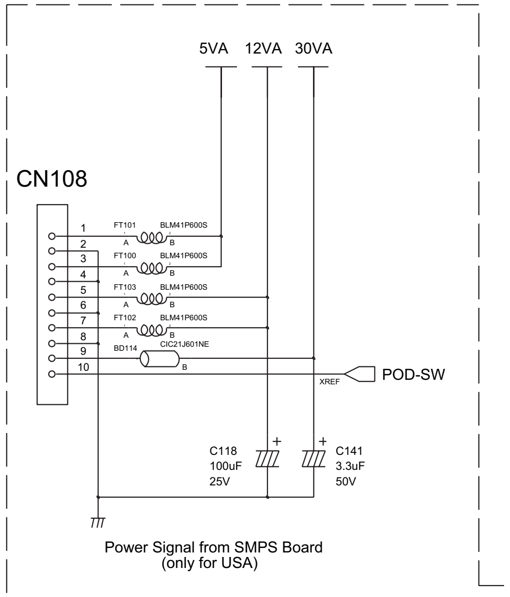
This Document can not be used without Samsung’s authorization.


Power Signal
from SMPS Board
[1:1]
CN115
SMW250-24V
33VB
5VA
S16VB
5.7VB
12VB
70VB
XREF
POWER-MUTE
POWER-SW
XREF
FT104
BLM41P600S
BD103
CIC21J601NE
FT105
BLM41P600S
FT106
BLM41P600S
FT108
BLM41P600S
FT109
BLM41P600S
FT110
BLM41P600S
BD115
CIC21J601NE
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
C106
4.7uF
50V
C161
100uF
16V
C171
100uF
16V
C181
100uF
25V

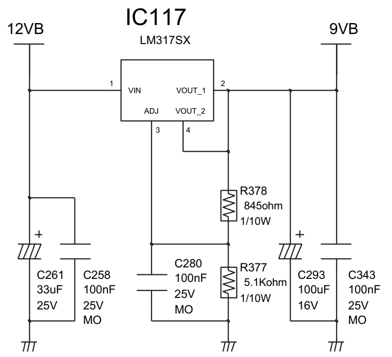

S16VB
C224
1mF
35V
C215
100nF
25V
MO

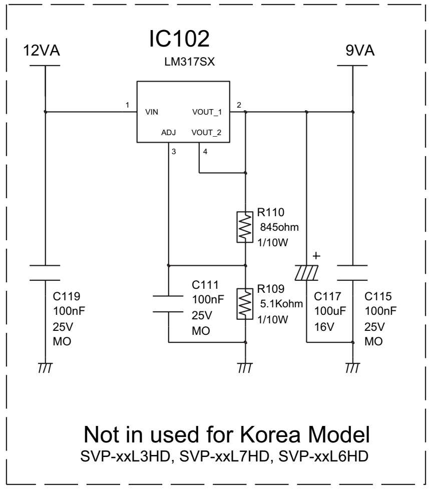

[1:1]
5VB
CN119
12VB
1
2
3
4
5
6
7
8
9

To DMD Board Assy (B+ Power)

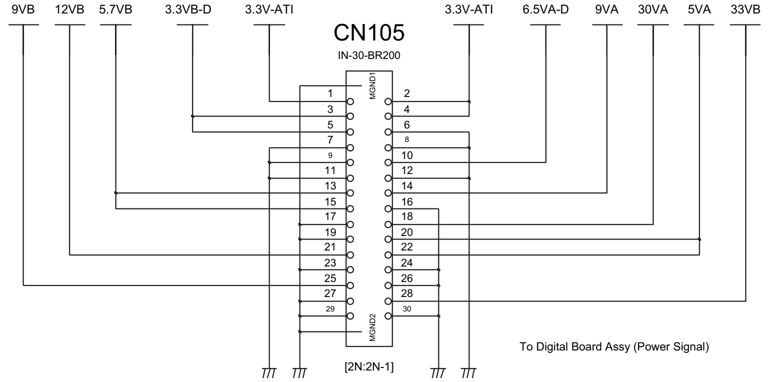

5VA
12VA
30VA
CN108
FT101
BLM41P600S
FT100
BLM41P600S
FT103
BLM41P600S
FT102
BLM41P600S
BD114
CIC21J601NE
A
B
1
2
3
4
5
6
7
8
9
10
XREF
POD-SW
C118
100uF
25V
C141
3.3uF
50V

Power Signal from SMPS Board
(only for USA)


12VB
IC117
LM317SX
9VB
VIN
VOUT_1
ADJ
VOUT_2
1
2
3
4
R378
845ohm
1/10W
R377
5.1Kohm
1/10W
C261
33uF
25V
C258
100nF
25V
MO
C280
100nF
25V
MO
C293
100uF
16V
C343
100nF
25V
MO

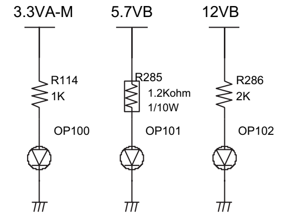

12VA
IC102
LM317SX
9VA
VIN
VOUT_1
ADJ
VOUT_2
1
2
3
4
R110
845ohm
1/10W
R109
5.1Kohm
1/10W
C119
100nF
25V
MO
C111
100nF
25V
MO
C117
100uF
16V
C115
100nF
25V
MO

Not in used for Korea Model
SVP-xxL3HD, SVP-xxL7HD, SVP-xxL6HD

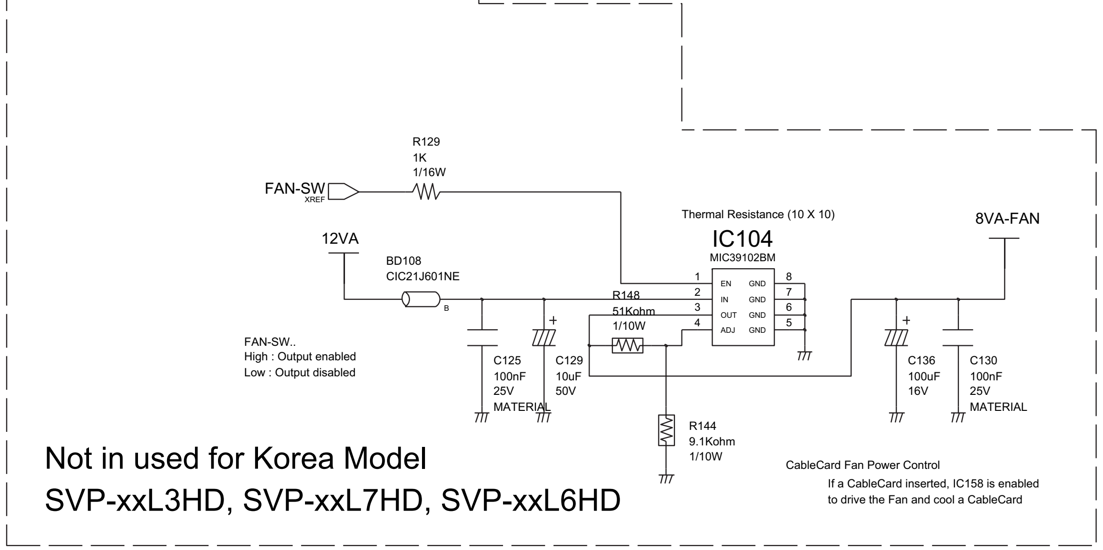

9VB
12VB
5.7VB
3.3VB-D
3.3V-ATI
CN105
IN-30-BR200
3.3V-ATI
6.5VA-D
9VA
30VA
5VA
33VB
MGND1
MGND2
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
[2N:2N-1]

To Digital Board Assy (Power Signal)

Angle and EMI Shielding Type
(3711-005567)


3.3VA-M
5.7VB
12VB
R114
1K
R285
1.2Kohm
1/10W
R286
2K
OP100
OP101
OP102

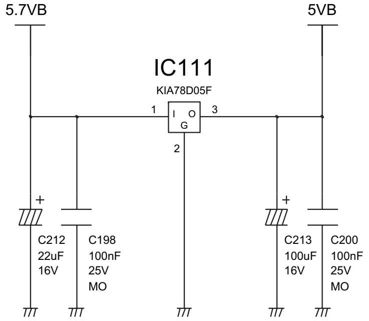
Power Check Indicator LED


FAN-SW
XREF
R129
1K
1/16W
12VA
BD108
CIC21J601NE
B
Thermal Resistance (10 X 10)
IC104
MIC39102BM
8VA-FAN
EN
IN
OUT
ADJ
GND
GND
GND
GND
1
2
3
4
5
6
7
8
R148
51Kohm
1/10W
C125
100nF
25V
MATERIAL
C129
10uF
50V
R144
9.1Kohm
1/10W
C136
100uF
16V
C130
100nF
25V
MATERIAL

FAN-SW..
High : Output enabled
Low : Output disabled

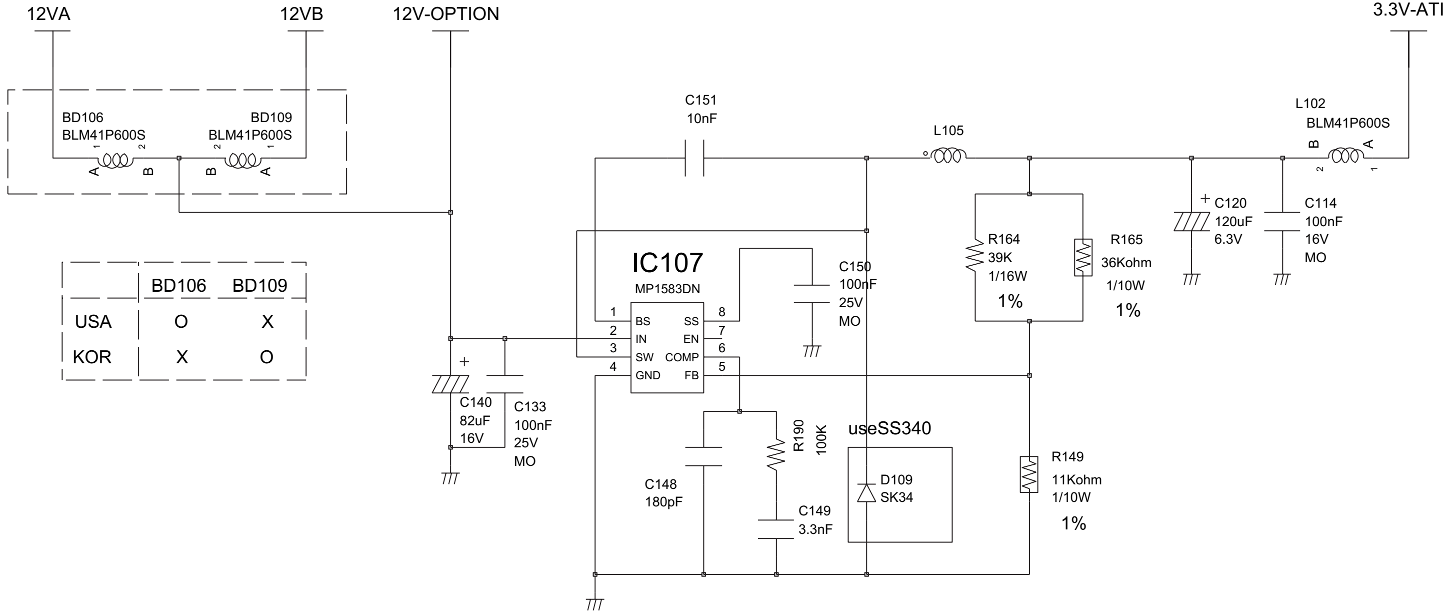
CableCard Fan Power Control
If a CableCard inserted, IC158 is enabled
to drive the Fan and cool a CableCard

Not in used for Korea Model
SVP-xxL3HD, SVP-xxL7HD, SVP-xxL6HD


5.7VB
5VB
IC111
KIA78D05F
1
3
2
I
O
G
C212
22uF
16V
C198
100nF
25V
MO
C213
100uF
16V
C200
100nF
25V
MO

10-1-2 DCDC

This Document can not be used without Samsung's authorization.

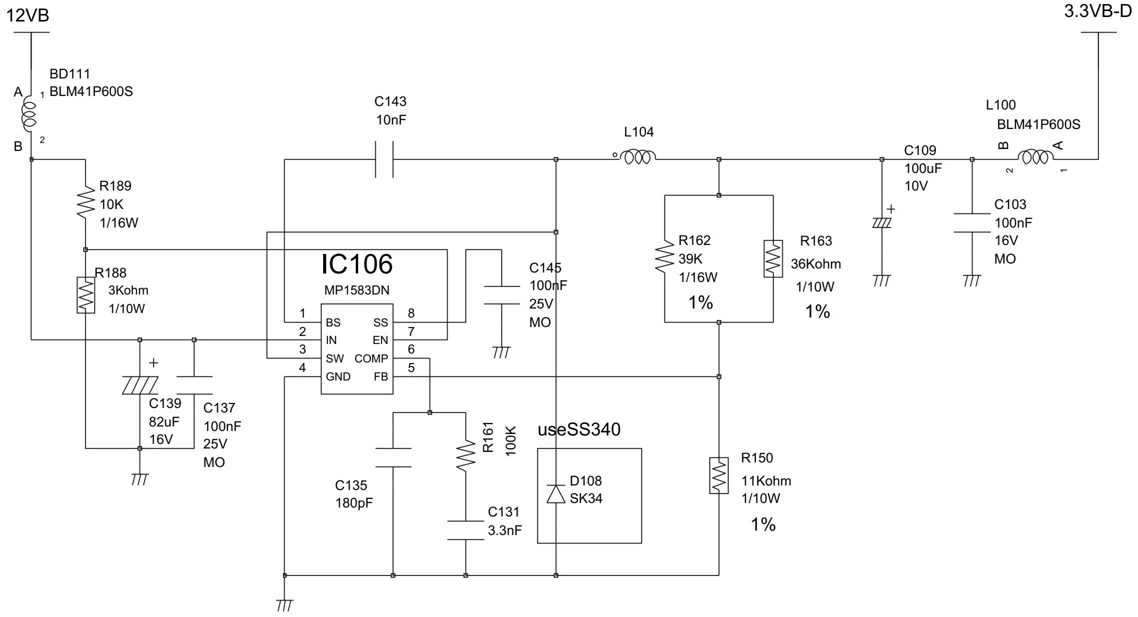

12VA
12VB
12V-OPTION
3.3V-ATI
BD106
BLM41P600S
BD109
BLM41P600S
C151
10nF
L105
L102
BLM41P600S
IC107
MP1583DN
BS
IN
SW
GND
SS
EN
COMP
FB
C150
100nF
25V
MO
R164
39K
1/16W
1%
R165
36Kohm
1/10W
1%
C120
120uF
6.3V
C114
100nF
16V
MO
C140
82uF
16V
C133
100nF
25V
MO
C148
180pF
R190
100K
C149
3.3nF
useSS340
D109
SK34
R149
11Kohm
1/10W
1%

	BD106	BD109
USA	O	X
KOR	X	O

DCDC Converter for Power of ATI-CPU

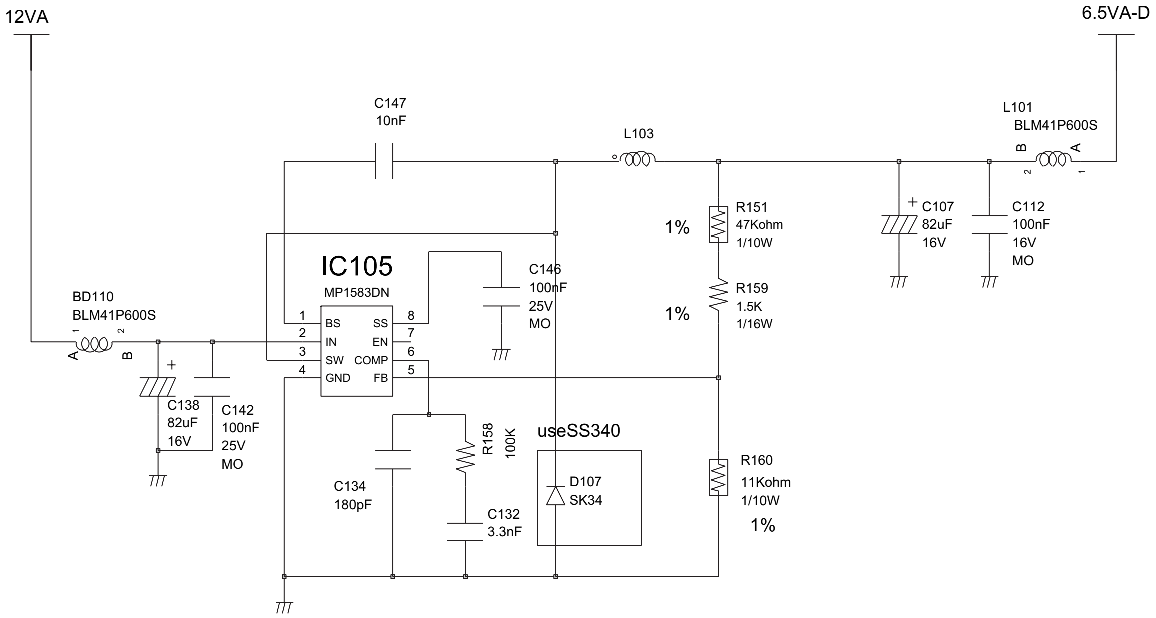
USA : STD power

KOR : B+ power


12VB
3.3VB-D
BD111
BLM41P600S
C143
10nF
L104
L100
BLM41P600S
C109
100uF
10V
C103
100nF
16V
MO
R189
10K
1/16W
R188
3Kohm
1/10W
IC106
MP1583DN
BS
IN
SW
GND
SS
EN
COMP
FB
C145
100nF
25V
MO
R162
39K
1/16W
1%
R163
36Kohm
1/10W
1%
C139
82uF
16V
C137
100nF
25V
MO
C135
180pF
R161
100K
C131
3.3nF
useSS340
D108
SK34
R150
11Kohm
1/10W
1%

DCDC Converter for Power of ATI-CPU

USA/KOR Common B+ power


12VA
6.5VA-D
C147
10nF
L103
L101
BLM41P600S
R151
47Kohm
1/10W
1%
R159
1.5K
1/16W
1%
C107
82uF
16V
C112
100nF
16V
MO
IC105
MP1583DN
BS
IN
SW
GND
SS
EN
COMP
FB
C146
100nF
25V
MO
BD110
BLM41P600S
C138
82uF
16V
C142
100nF
25V
MO
C134
180pF
R158
100K
C132
3.3nF
useSS340
D107
SK34
R160
11Kohm
1/10W
1%

DCDC Converter for Power of Channel Board

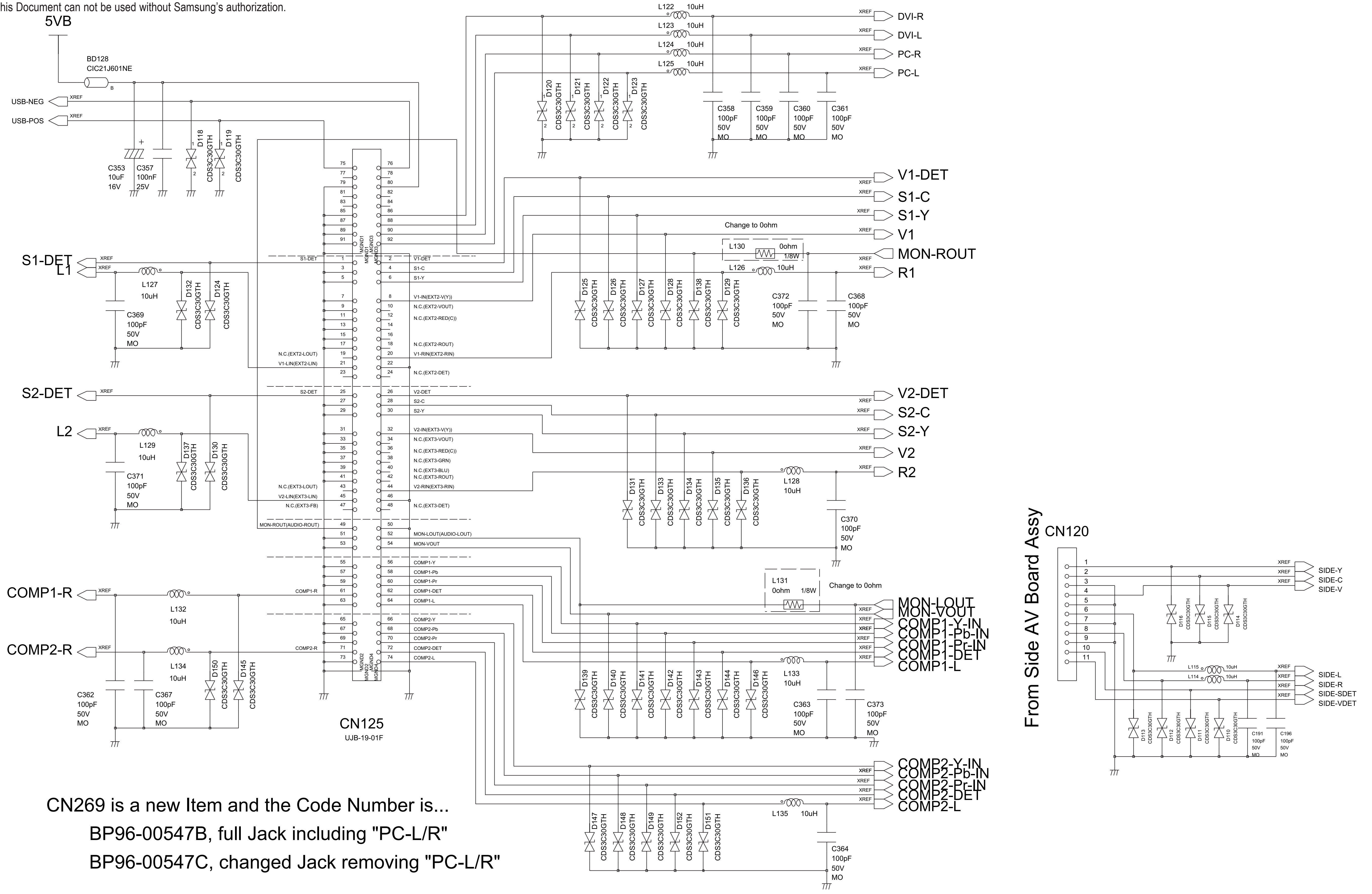
Only for USA

Not In Used for Korea Models

SVP-xxL3HD, SVP-xxL6HD & SVP-xxL7HD

10-1-3 AV_Input

This Document can not be used without Samsung's authorization.


5VB
BD128
CIC21J601NE
USB-NEG
USB-POS
C353 10uF 16V
C357 100nF 25V
D118 CDS3C30GTH
D119 CDS3C30GTH
L122 10uH
L123 10uH
L124 10uH
L125 10uH
DVI-R
DVI-L
PC-R
PC-L
D120 D121 D122 D123 CDS3C30GTH
C358 C359 C360 C361 100pF 50V MO
V1-DET
S1-C
S1-Y
V1
MON-ROUT
R1
Change to 0ohm
L130 0ohm 1/8W
L126 10uH
D125 D126 D127 D128 D138 D129 CDS3C30GTH
C372 100pF 50V MO
C368 100pF 50V MO
S1-DET
L1
L127 10uH
C369 100pF 50V MO
D132 D124 CDS3C30GTH
S2-DET
L2
L129 10uH
C371 100pF 50V MO
D137 D130 CDS3C30GTH
V2-DET
S2-C
S2-Y
V2
R2
L128 10uH
D131 D133 D134 D135 D136 CDS3C30GTH
C370 100pF 50V MO
COMP1-R
L132 10uH
COMP2-R
L134 10uH
D150 D145 CDS3C30GTH
C362 100pF 50V MO
C367 100pF 50V MO
CN125
UJB-19-01F
L131 0ohm 1/8W
Change to 0ohm
MON-LOUT
MON-VOUT
COMP1-Y-IN
COMP1-Pb-IN
COMP1-Pr-IN
COMP1-DET
COMP1-L
D139 D140 D141 D142 D143 D144 D146 CDS3C30GTH
L133 10uH
C363 100pF 50V MO
C373 100pF 50V MO
COMP2-Y-IN
COMP2-Pb-IN
COMP2-Pr-IN
COMP2-DET
COMP2-L
L135 10uH
D147 D148 D149 D152 D151 CDS3C30GTH
C364 100pF 50V MO
From Side AV Board Assy
CN120
SIDE-Y
SIDE-C
SIDE-V
D116 D115 D114 CDS3C30GTH
L115 10uH
L114 10uH
SIDE-L
SIDE-R
SIDE-SDET
SIDE-VDET
D113 D112 D111 D110 CDS3C30GTH
C191 100pF 50V MO
C196 100pF 50V MO
XREF

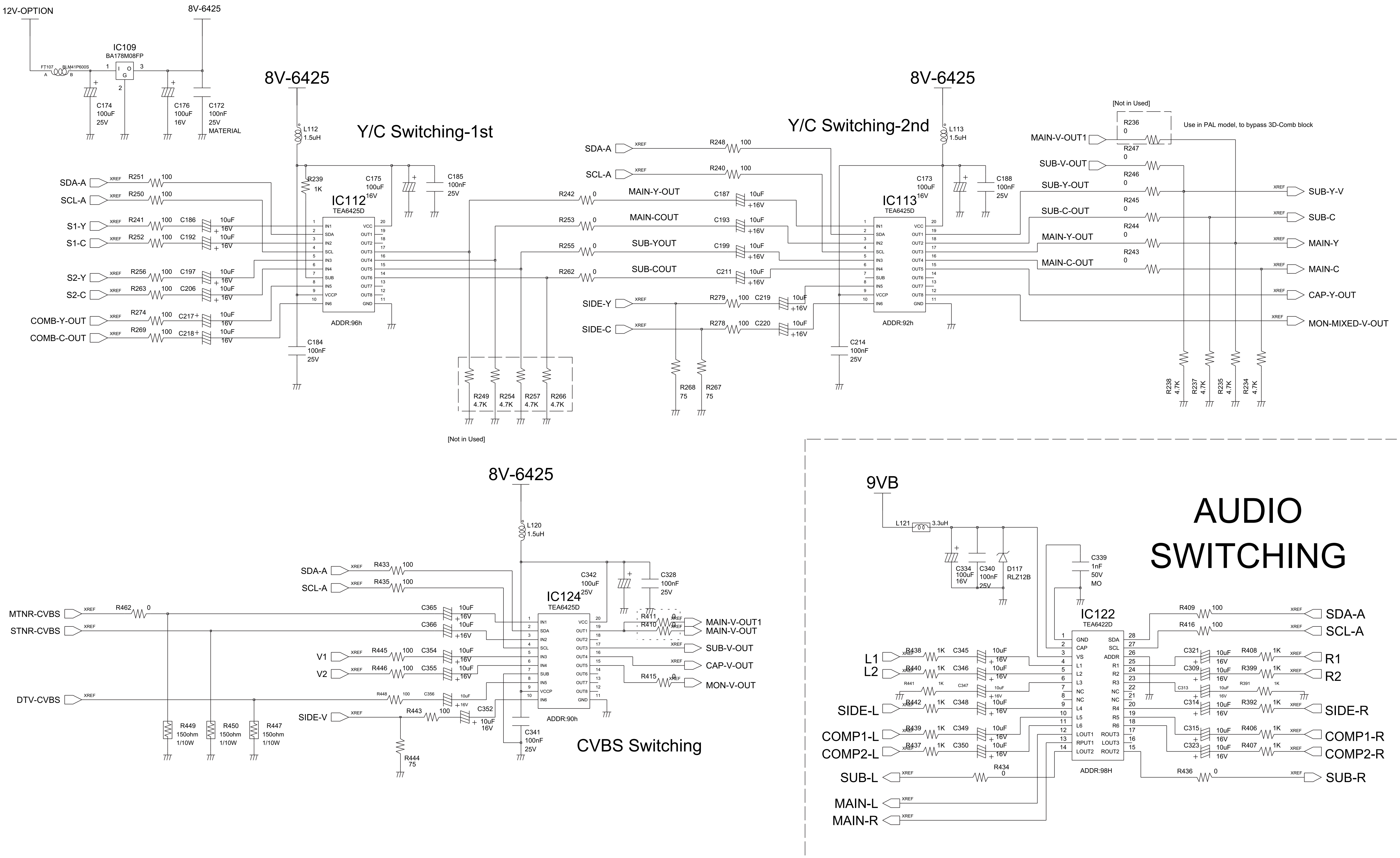
CN269 is a new Item and the Code Number is...

BP96-00547B, full Jack including "PC-L/R"

BP96-00547C, changed Jack removing "PC-L/R"

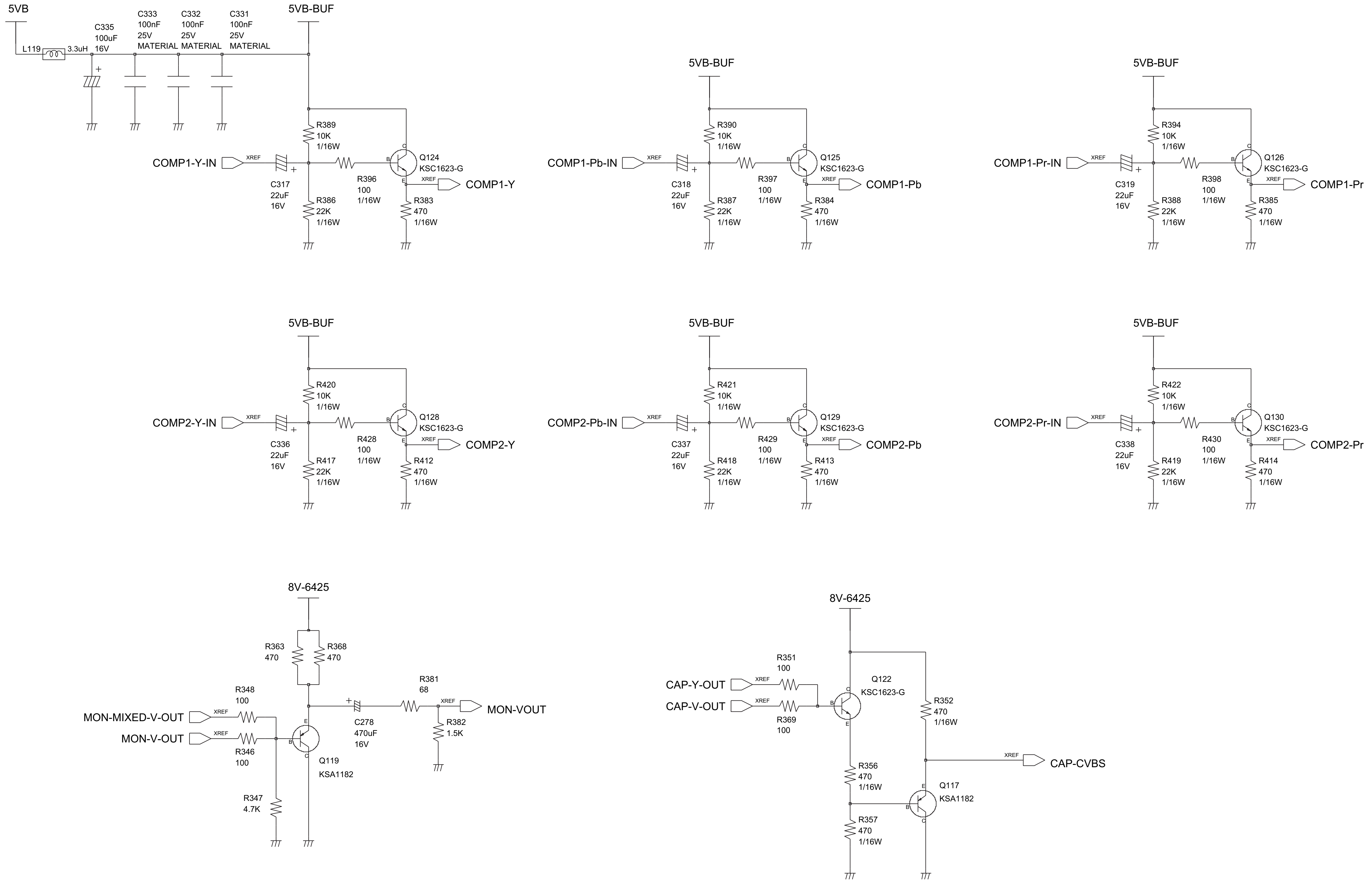
10-1-4 A/V Switching

This Document can not be used without Samsung's authorization.


12V-OPTION
8V-6425
IC109
BA178M08FP
C174 100uF 25V
C176 100uF 16V
C172 100nF 25V MATERIAL
Y/C Switching-1st
L112 1.5uH
IC112
TEA6425D
ADDR:96h
SDA-A
SCL-A
S1-Y
S1-C
S2-Y
S2-C
COMB-Y-OUT
COMB-C-OUT
R249 4.7K
R254 4.7K
R257 4.7K
R266 4.7K
[Not in Used]
Y/C Switching-2nd
L113 1.5uH
IC113
TEA6425D
ADDR:92h
MAIN-Y-OUT
MAIN-COUT
SUB-YOUT
SUB-COUT
SIDE-Y
SIDE-C
R268 75
R267 75
MAIN-V-OUT1
SUB-V-OUT
SUB-Y-OUT
SUB-C-OUT
MAIN-Y-OUT
MAIN-C-OUT
Use in PAL model, to bypass 3D-Comb block
SUB-Y-V
SUB-C
MAIN-Y
MAIN-C
CAP-Y-OUT
MON-MIXED-V-OUT
R238 4.7K
R237 4.7K
R235 4.7K
R234 4.7K
CVBS Switching
L120 1.5uH
IC124
TEA6425D
ADDR:90h
MTNR-CVBS
STNR-CVBS
V1
V2
DTV-CVBS
SIDE-V
R449 150ohm 1/10W
R450 150ohm 1/10W
R447 150ohm 1/10W
R444 75
MAIN-V-OUT1
MAIN-V-OUT
SUB-V-OUT
CAP-V-OUT
MON-V-OUT
AUDIO SWITCHING
9VB
L121 3.3uH
C334 100uF 16V
C340 100nF 25V
D117 RLZ12B
C339 1nF 50V MO
IC122
TEA6422D
ADDR:98H
L1
L2
SIDE-L
COMP1-L
COMP2-L
SUB-L
MAIN-L
MAIN-R
SDA-A
SCL-A
R1
R2
SIDE-R
COMP1-R
COMP2-R
SUB-R

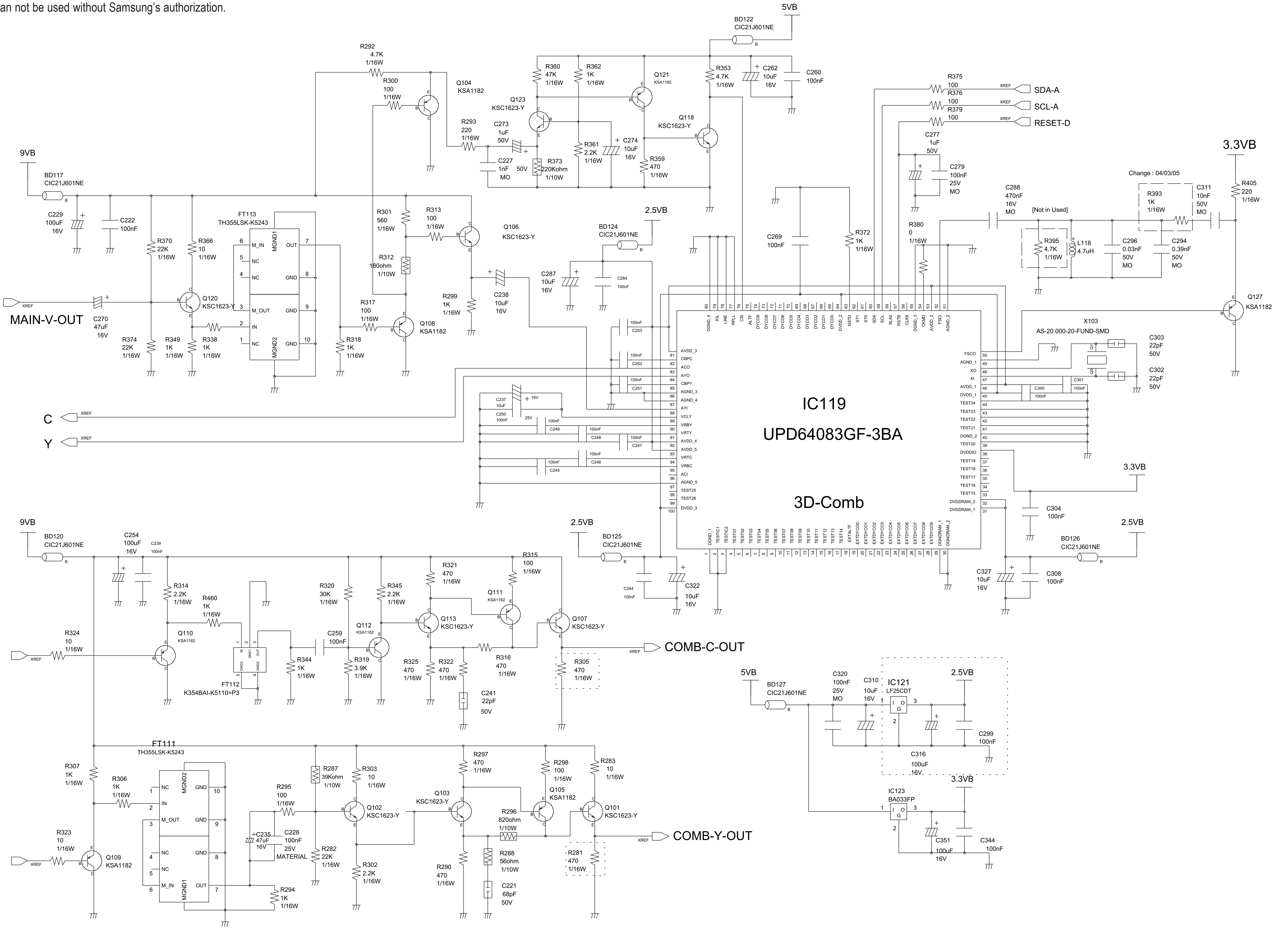
10-1-5 AV_Comp_Buffer

This Document can not be used without Samsung's authorization.


5VB
L119 3.3uH
C335 100uF 16V
C333 100nF 25V MATERIAL
C332 100nF 25V MATERIAL
C331 100nF 25V MATERIAL
5VB-BUF
R389 10K 1/16W
COMP1-Y-IN
XREF
C317 22uF 16V
R396 100 1/16W
Q124 KSC1623-G
COMP1-Y
R386 22K 1/16W
R383 470 1/16W
R390 10K 1/16W
COMP1-Pb-IN
C318 22uF 16V
R397 100 1/16W
Q125 KSC1623-G
COMP1-Pb
R387 22K 1/16W
R384 470 1/16W
R394 10K 1/16W
COMP1-Pr-IN
C319 22uF 16V
R398 100 1/16W
Q126 KSC1623-G
COMP1-Pr
R388 22K 1/16W
R385 470 1/16W
R420 10K 1/16W
COMP2-Y-IN
C336 22uF 16V
R428 100 1/16W
Q128 KSC1623-G
COMP2-Y
R417 22K 1/16W
R412 470 1/16W
R421 10K 1/16W
COMP2-Pb-IN
C337 22uF 16V
R429 100 1/16W
Q129 KSC1623-G
COMP2-Pb
R418 22K 1/16W
R413 470 1/16W
R422 10K 1/16W
COMP2-Pr-IN
C338 22uF 16V
R430 100 1/16W
Q130 KSC1623-G
COMP2-Pr
R419 22K 1/16W
R414 470 1/16W
8V-6425
R363 470
R368 470
R348 100
MON-MIXED-V-OUT
MON-V-OUT
R346 100
R347 4.7K
Q119 KSA1182
C278 470uF 16V
R381 68
MON-VOUT
R382 1.5K
8V-6425
R351 100
CAP-Y-OUT
CAP-V-OUT
R369 100
Q122 KSC1623-G
R352 470 1/16W
CAP-CVBS
R356 470 1/16W
Q117 KSA1182
R357 470 1/16W
B
C
E

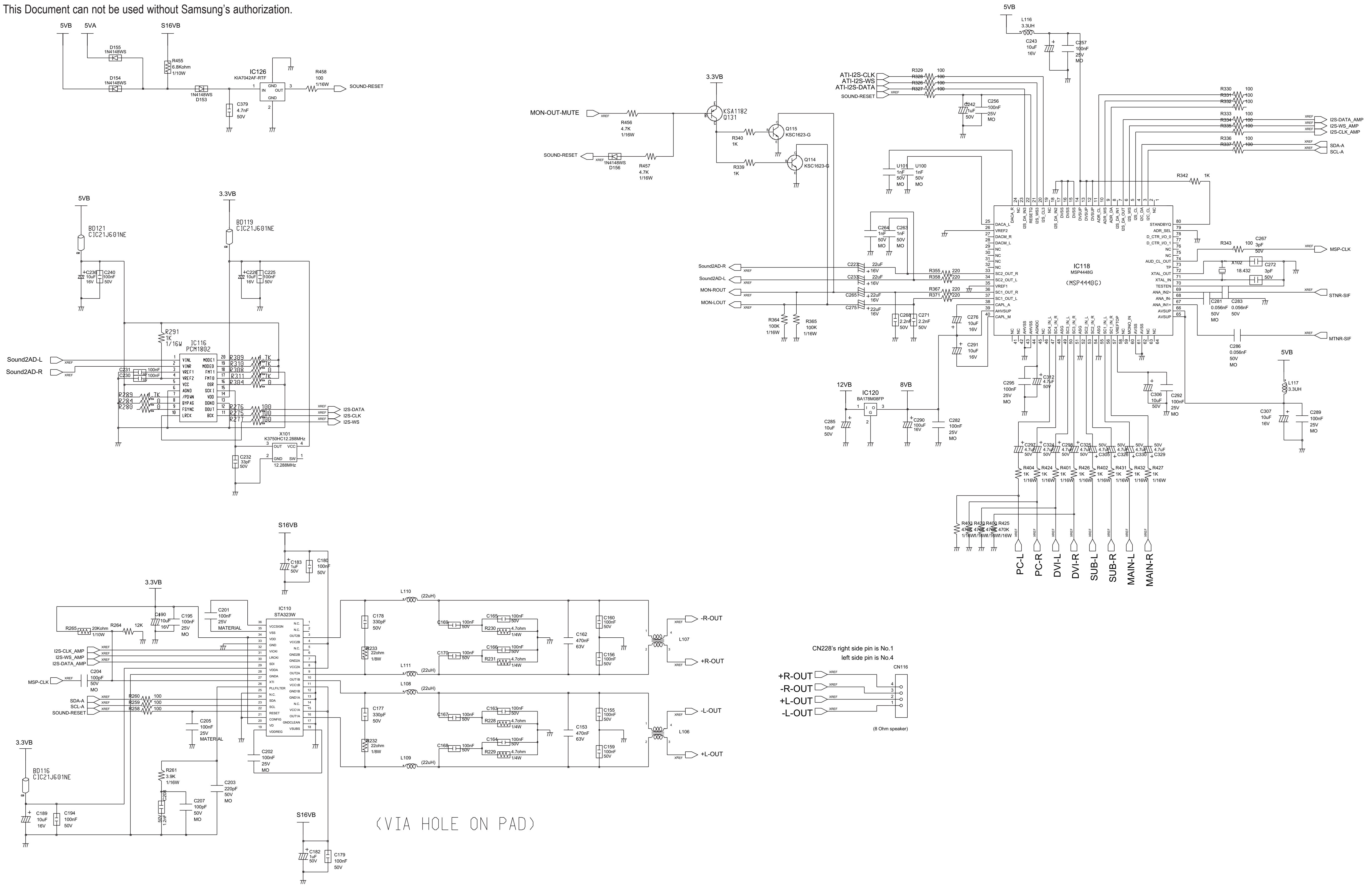
10-1-6 3D-Comb

This Document can not be used without Samsung's authorization.

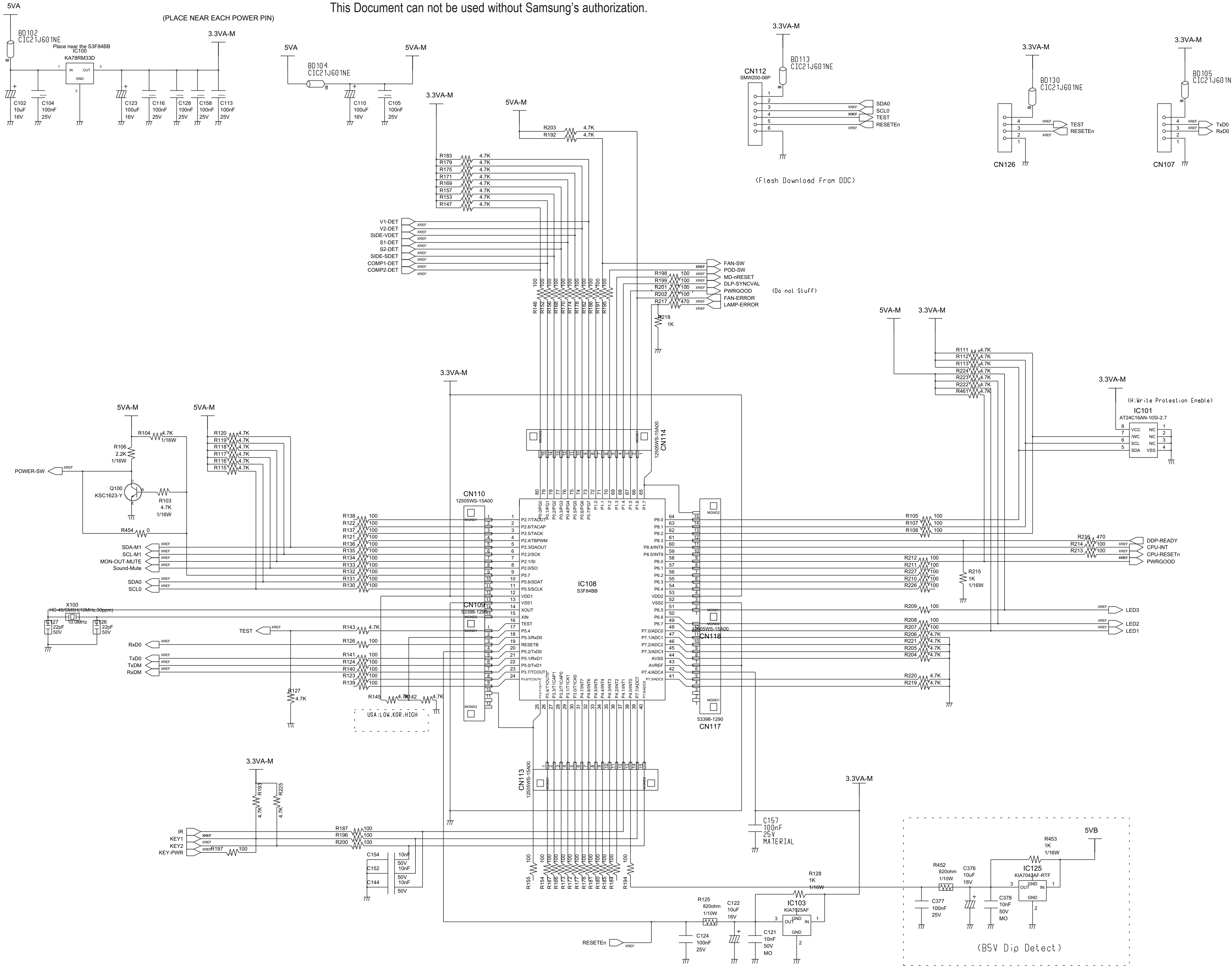

5VB
BD122 CIC21J601NE
R292 4.7K 1/16W
R300 100 1/16W
Q104 KSA1182
R360 47K 1/16W
R362 1K 1/16W
Q121 KSA1182
R353 4.7K 1/16W
C262 10uF 16V
C260 100nF
Q123 KSC1623-Y
R293 220 1/16W
C273 1uF 50V
C227 1nF 50V MO
R373 220Kohm 1/10W
R361 2.2K 1/16W
C274 10uF 16V
R359 470 1/16W
Q118 KSC1623-Y
R375 100
R376 100
R379 100
SDA-A
SCL-A
RESET-D
XREF
C277 1uF 50V
C279 100nF 25V MO
3.3VB
R405 220 1/16W
Change : 04/03/05
C311 10nF 50V MO
R393 1K 1/16W
C288 470nF 16V MO
[Not in Used]
R395 4.7K 1/16W
L118 4.7uH
C296 0.03nF 50V MO
C294 0.39nF 50V MO
9VB
BD117 CIC21J601NE
C229 100uF 16V
C222 100nF
FT113 TH355LSK-K5243
M_IN
NC
M_OUT
IN
OUT
GND
MGND1
MGND2
R370 22K 1/16W
R366 10 1/16W
Q120 KSC1623-Y
MAIN-V-OUT
C270 47uF 16V
R374 22K 1/16W
R349 1K 1/16W
R338 1K 1/16W
R301 560 1/16W
R313 100 1/16W
Q106 KSC1623-Y
R312 180ohm 1/10W
R317 100 1/16W
Q108 KSA1182
R318 1K 1/16W
R299 1K 1/16W
C238 10uF 16V
2.5VB
BD124 CIC21J601NE
C287 10uF 16V
C284 100nF
C269 100nF
R372 1K 1/16W
R380 0 1/16W
Q127 KSA1182
X103 AS-20.000-20-FUND-SMD
C303 22pF 50V
C302 22pF 50V
C300 100nF
C301 100nF
C253 C252 C251 C250 C249 C248 C247 C246 C245 100nF
C237 10uF 16V
C
Y
IC119
UPD64083GF-3BA
3D-Comb
3.3VB
C304 100nF
9VB
BD120 CIC21J601NE
C254 100uF 16V
C239 100nF
2.5VB
BD125 CIC21J601NE
C244 100nF
C322 10uF 16V
BD126 CIC21J601NE
C327 10uF 16V
C308 100nF
R314 2.2K 1/16W
R460 1K 1/16W
R324 10 1/16W
Q110 KSA1182
FT112 K354BAI-K5110=P3
R320 30K 1/16W
R345 2.2K 1/16W
R321 470 1/16W
R315 100 1/16W
Q111 KSA1182
Q107 KSC1623-Y
Q112 KSA1182
C259 100nF
Q113 KSC1623-Y
R344 1K 1/16W
R319 3.9K 1/16W
R325 470 1/16W
R322 470 1/16W
R316 470 1/16W
R305 470 1/16W
C241 22pF 50V
COMB-C-OUT
5VB
BD127 CIC21J601NE
C320 100nF 25V MO
C310 10uF 16V
IC121 LF25CDT
2.5VB
C299 100nF
C316 100uF 16V
3.3VB
IC123 BA033FP
C351 100uF 16V
C344 100nF
FT111 TH355LSK-K5243
R307 1K 1/16W
R306 1K 1/16W
R323 10 1/16W
Q109 KSA1182
R287 39Kohm 1/10W
R303 10 1/16W
R295 100 1/16W
Q102 KSC1623-Y
C235 47uF 16V
C228 100nF 25V MATERIAL
R282 22K 1/16W
R302 2.2K 1/16W
R294 1K 1/16W
Q103 KSC1623-Y
R297 470 1/16W
R290 470 1/16W
R296 820ohm 1/10W
R288 56ohm 1/10W
C221 68pF 50V
R298 100 1/16W
Q105 KSA1182
R283 10 1/16W
Q101 KSC1623-Y
R281 470 1/16W
COMB-Y-OUT

10-1-7 Sound Processor/Amp

This Document can not be used without Samsung's authorization.


5VB
5VA
S16VB
D155 1N4148WS
D154 1N4148WS
R455 6.8Kohm 1/10W
1N4148WS D153
IC126 KIA7042AF-RTF
C379 4.7nF 50V
R458 100 1/16W
SOUND-RESET
MON-OUT-MUTE
R456 4.7K 1/16W
KSA1182 Q131
Q115 KSC1623-G
Q114 KSC1623-G
R340 1K
R339 1K
1N4148WS D156
R457 4.7K 1/16W
3.3VB
BD121 CIC21J601NE
BD119 CIC21J601NE
R291 1K 1/16W
IC116 PCM1802
Sound2AD-L
Sound2AD-R
I2S-DATA
I2S-CLK
I2S-WS
X101 K3750HC12.288MHz
12.288MHz
C232 33pF 50V
ATI-I2S-CLK
ATI-I2S-WS
ATI-I2S-DATA
L116 3.3UH
IC118 MSP4448G
(MSP4440G)
I2S-DATA_AMP
I2S-WS_AMP
I2S-CLK_AMP
SDA-A
SCL-A
MSP-CLK
X102 18.432
STNR-SIF
MTNR-SIF
Sound2AD-R
Sound2AD-L
MON-ROUT
MON-LOUT
12VB
8VB
IC120 BA178M08FP
5VB
L117 3.3UH
PC-L
PC-R
DVI-L
DVI-R
SUB-L
SUB-R
MAIN-L
MAIN-R
S16VB
IC110 STA323W
L110 (22uH)
L111 (22uH)
L108 (22uH)
L109 (22uH)
L107
L106
-R-OUT
+R-OUT
-L-OUT
+L-OUT
I2S-CLK_AMP
I2S-WS_AMP
I2S-DATA_AMP
MSP-CLK
SDA-A
SCL-A
SOUND-RESET
BD116 CIC21J601NE
CN228's right side pin is No.1
left side pin is No.4
CN116
+R-OUT
-R-OUT
+L-OUT
-L-OUT
(8 Ohm speaker)
(VIA HOLE ON PAD)

10-1-8 S3F84BB_Micom

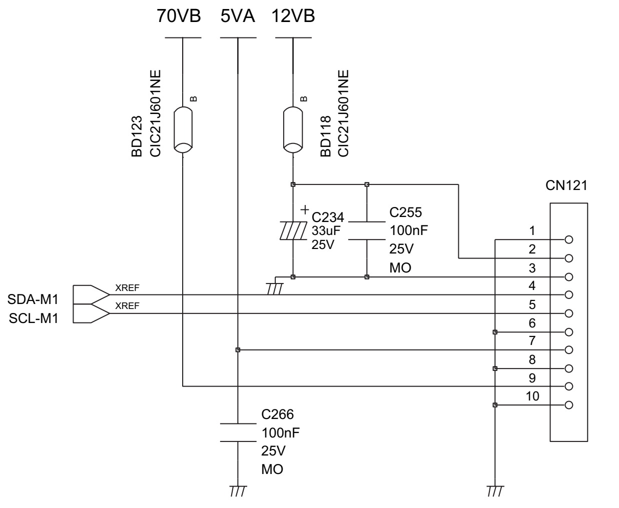


This Document can not be used without Samsung's authorization.

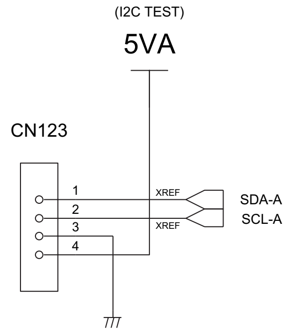
5VA
BD102
CIC21J601NE
(PLACE NEAR EACH POWER PIN)
Place near the S3F84BB
IC100
KA78RM33D
IN
OUT
GND
3.3VA-M
C102 10uF 16V
C104 100nF 25V
C123 100uF 16V
C116 100nF 25V
C128 100nF 25V
C158 100nF 25V
C113 100nF 25V
BD104
CIC21J601NE
5VA-M
C110 100uF 16V
C105 100nF 25V
BD113
CIC21J601NE
CN112
SMW200-06P
SDA0
SCL0
TEST
RESETEn
(Flash Download from DDC)
BD130
CIC21J601NE
CN126
BD105
CIC21J601NE
CN107
TxD0
RxD0
R203 4.7K
R192 4.7K
R183 R179 R175 R171 R169 R157 R153 R147 4.7K
V1-DET
V2-DET
SIDE-VDET
S1-DET
S2-DET
SIDE-SDET
COMP1-DET
COMP2-DET
FAN-SW
POD-SW
MD-nRESET
DLP-SYNCVAL
PWRGOOD
FAN-ERROR
LAMP-ERROR
R198 100
R199 100
R201 100
R202 100
R217 470
(Do not Stuff)
R218 1K
R111 R112 R113 R224 R223 R222 R461 4.7K
(H:Write Protection Enable)
IC101
AT24C16AN-10SI-2.7
VCC /WC SCL SDA NC NC NC VSS
5VA-M
R104 4.7K 1/16W
R106 2.2K 1/16W
POWER-SW
Q100
KSC1623-Y
R103 4.7K 1/16W
R120 R119 R118 R117 R116 R115 4.7K
CN110
12505WS-15A00
CN114
R138 R122 R137 R121 R136 R135 R134 R133 R132 R131 R130 100
R454 0
SDA-M1
SCL-M1
MON-OUT-MUTE
Sound-Mute
SDA0
SCL0
X100
HC-49/SMSH(10MHz,30ppm)
10.0MHz
C127 22pF 50V
C126 22pF 50V
TEST
R143 4.7K
RxD0
R126 100
TxD0
TxDM
RxDM
R141 R124 R140 R123 R139 100
CN109
53398-1290
R127 4.7K
R145 4.7K
R142 4.7K
USA:LOW,KOR:HIGH
IC108
S3F84BB
CN118
12505WS-15A00
CN117
53398-1290
R105 R107 R108 100
R216 470
R214 100
R213 100
DDP-READY
CPU-INT
CPU-RESETn
PWRGOOD
R212 R211 R227 R210 R226 100
R215 1K 1/16W
R209 100
LED3
R208 100
R207 100
LED2
LED1
R206 R221 R205 R204 4.7K
R220 R219 4.7K
CN113
12505WS-15A00
3.3VA-M
R193 4.7K
R225 4.7K
IR
KEY1
KEY2
KEY-PWR
R187 100
R196 100
R200 100
R197 100
C154 10nF 50V
C152 10nF 50V
C144 10nF 50V
R155 R154 R167 R165 R173 R172 R177 R176 R181 R180 R185 R184 R194 100
C157 100nF 25V MATERIAL
R128 1K 1/16W
R125 820ohm 1/10W
C122 10uF 16V
IC103
KIA7025AF
C121 10nF 50V MO
C124 100nF 25V
RESETEn
5VB
R453 1K 1/16W
R452 820ohm 1/10W
C376 10uF 16V
IC125
KIA7042AF-RTF
C377 100nF 25V
C378 10nF 50V MO
(B5V Dip Detect)

10-1-9 Signal Connection

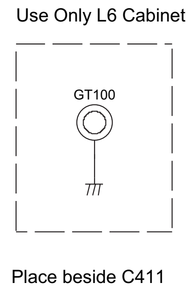
This Document can not be used without Samsung's authorization.

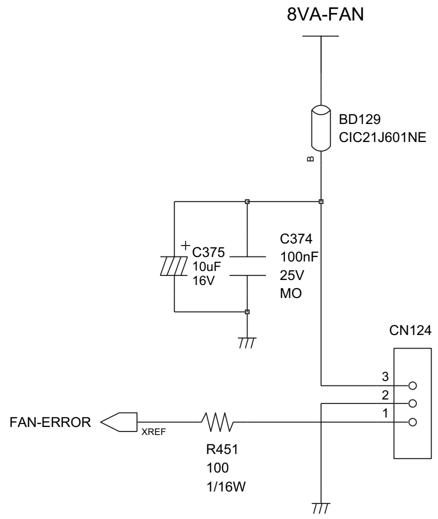

70VB
5VA
12VB
BD123
CIC21J601NE
BD118
CIC21J601NE
C234
33uF
25V
C255
100nF
25V
MO
CN121
SDA-M1
SCL-M1
XREF
C266
100nF
25V
MO

From/To Sub-Detect PCB

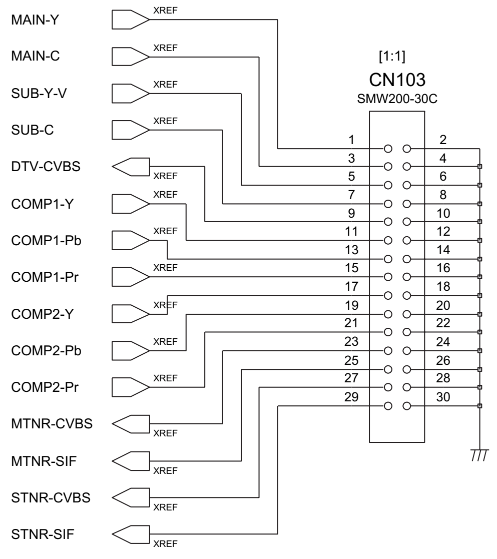

(I2C TEST)
5VA
CN123
1
2
3
4
XREF
SDA-A
SCL-A

For Debugging

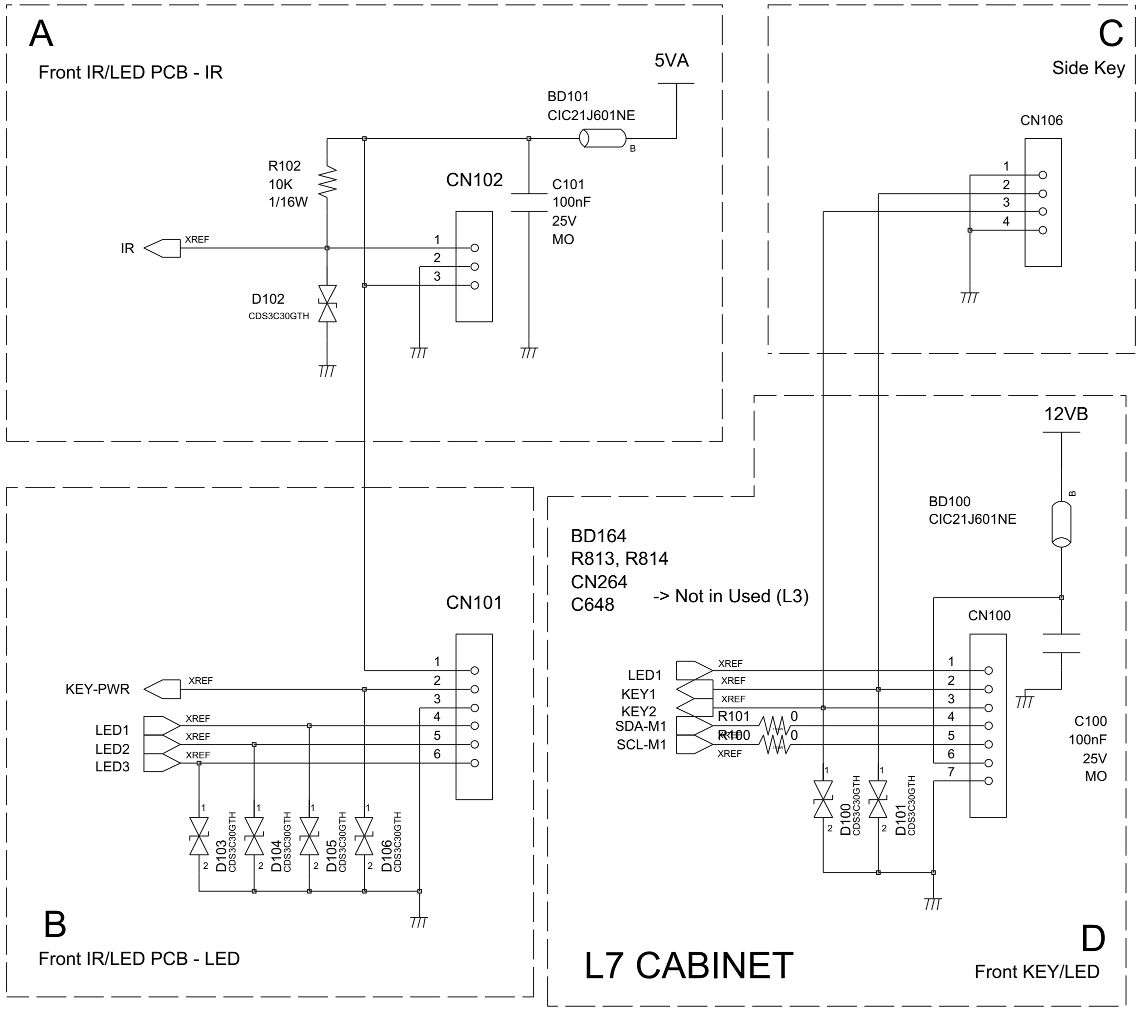

Use Only L6 Cabinet
GT100
Place beside C411


8VA-FAN
BD129
CIC21J601NE
C375
10uF
16V
C374
100nF
25V
MO
CN124
FAN-ERROR
XREF
R451
100
1/16W

CableCARD Cooling FAN

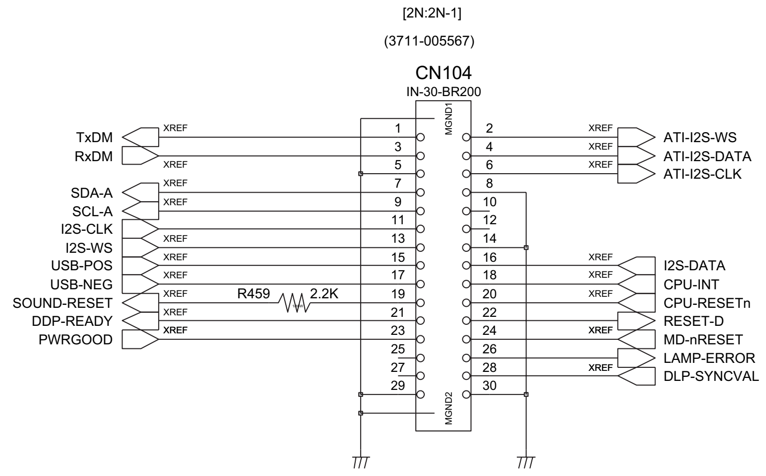

[1:1]
CN103
SMW200-30C
MAIN-Y
MAIN-C
SUB-Y-V
SUB-C
DTV-CVBS
COMP1-Y
COMP1-Pb
COMP1-Pr
COMP2-Y
COMP2-Pb
COMP2-Pr
MTNR-CVBS
MTNR-SIF
STNR-CVBS
STNR-SIF
XREF

AV Signal Connection
Between Analog and Digital


A
Front IR/LED PCB - IR
5VA
BD101
CIC21J601NE
R102
10K
1/16W
CN102
C101
100nF
25V
MO
IR
XREF
D102
CDS3C30GTH
C
Side Key
CN106
12VB
BD100
CIC21J601NE
BD164
R813, R814
CN264
C648
-> Not in Used (L3)
CN101
KEY-PWR
LED1
LED2
LED3
D103
D104
D105
D106
CN100
LED1
KEY1
KEY2
SDA-M1
SCL-M1
R101 0
R100 0
D100
D101
C100
100nF
25V
MO
B
Front IR/LED PCB - LED
L7 CABINET
D
Front KEY/LED

A	B	C	D
1. IR 2. GND 3. 5VA	1. 5VA 2. KEY-PWR 3. GND 4. LED1 5. LED2 6. LED3	1. GND 2. KEY1 3. KEY2 4. GND	1. LED1 2. KEY1 3. KEY2 4. SDA-M1 5. SCL-M1 6. 5VB 7. GND

Used as follows...
L3 : A+B, C
L5 : A, B, C
L7 : A, D

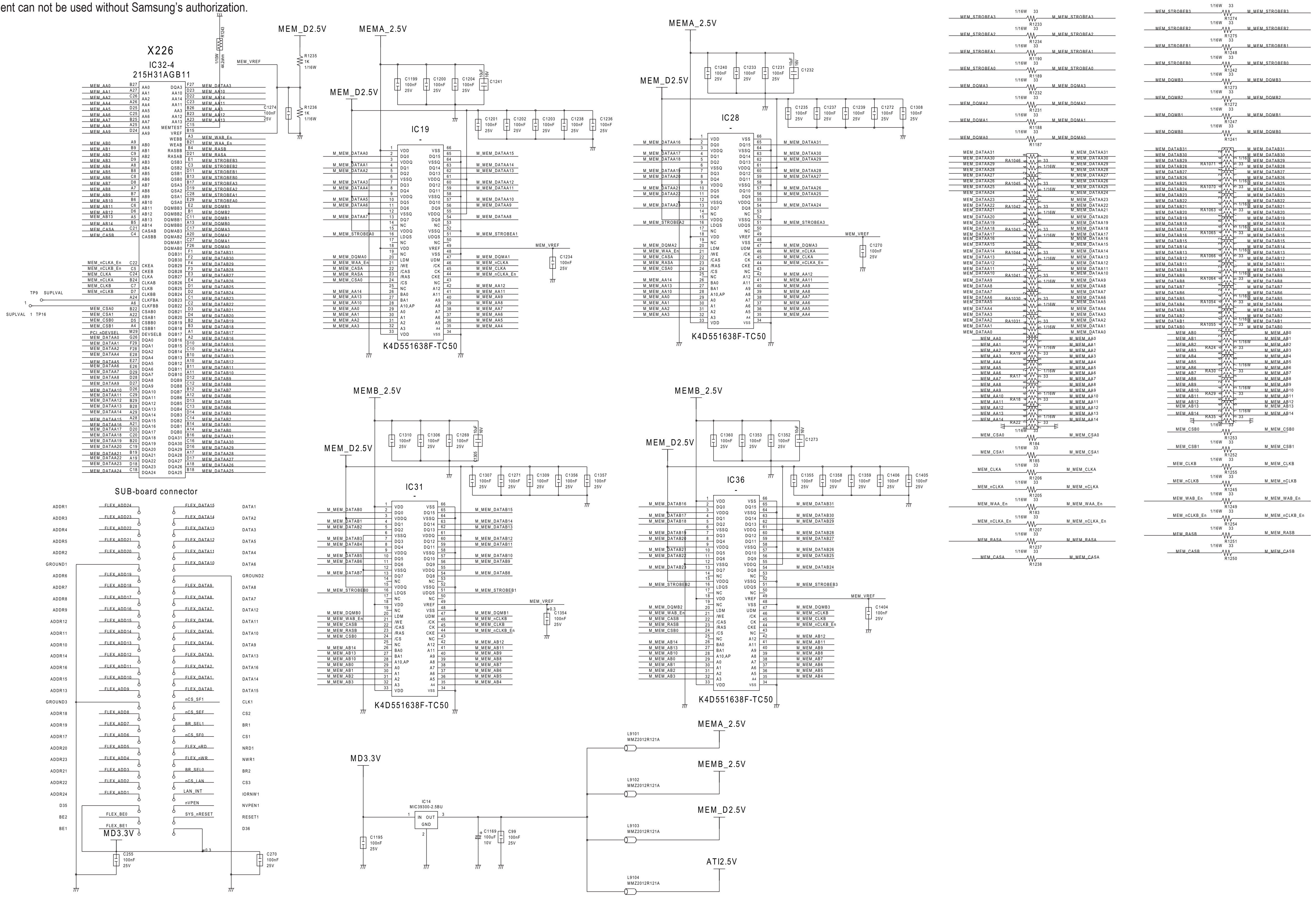

[2N:2N-1]
(3711-005567)
CN104
IN-30-BR200
TxDM
RxDM
SDA-A
SCL-A
I2S-CLK
I2S-WS
USB-POS
USB-NEG
SOUND-RESET
DDP-READY
PWRGOOD
R459
2.2K
ATI-I2S-WS
ATI-I2S-DATA
ATI-I2S-CLK
I2S-DATA
CPU-INT
CPU-RESETn
RESET-D
MD-nRESET
LAMP-ERROR
DLP-SYNCVAL
XREF

Control Signal Connection
Between Analog and Digital

10-2 Digital Board

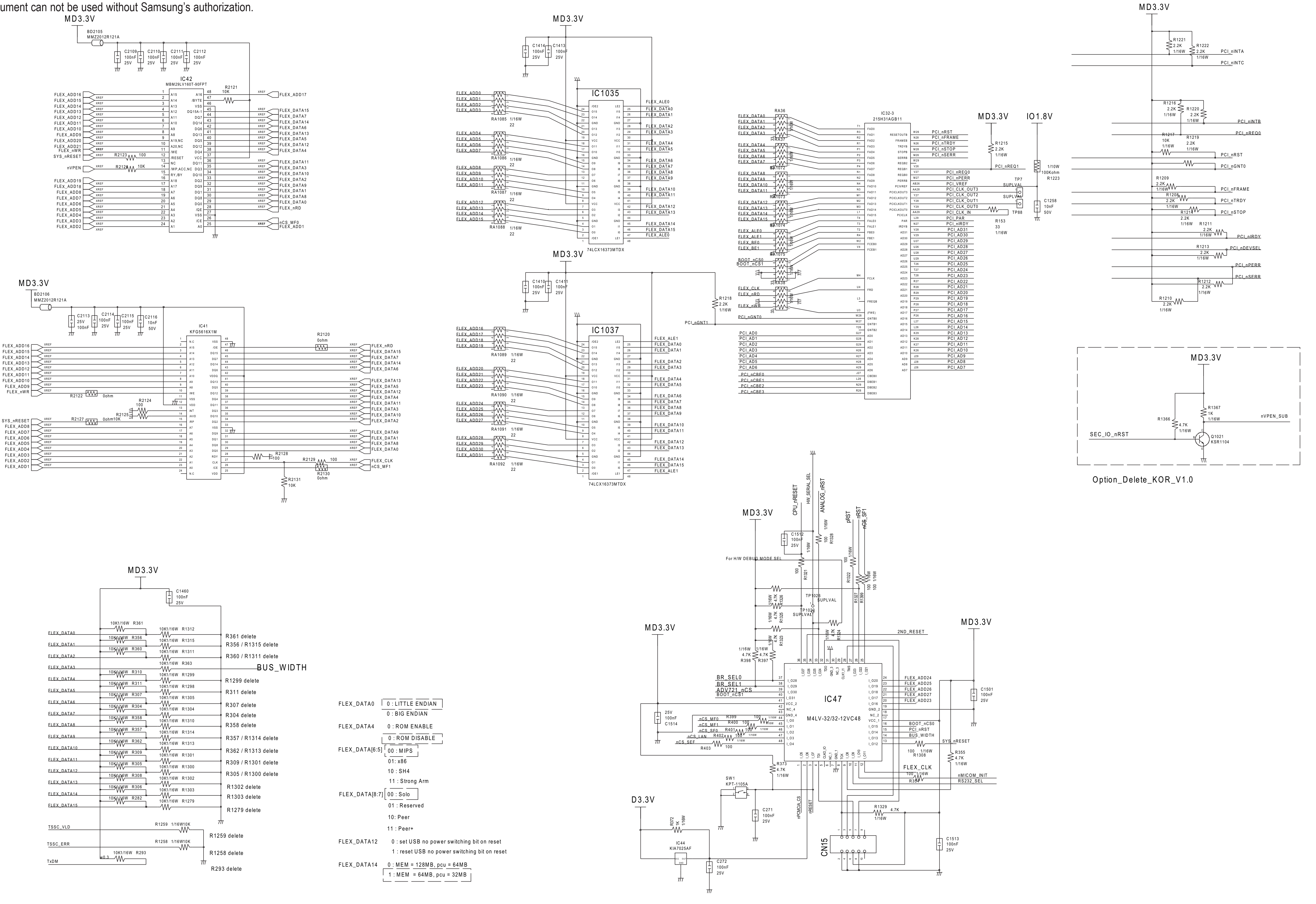
10-2-1 DTV Module-1

This Document can not be used without Samsung's authorization.


X226
IC32-4
215H31AGB11
MEM_D2.5V
MEMA_2.5V
MEMB_2.5V
MEM_VREF
IC19
IC28
IC31
IC36
K4D551638F-TC50
SUB-board connector
MD3.3V
IC14
MIC39300-2.5BU
L9101
L9102
L9103
L9104
MMZ2012R121A
ATI2.5V

10-2-2 DTV Module-2

This Document can not be used without Samsung's authorization.

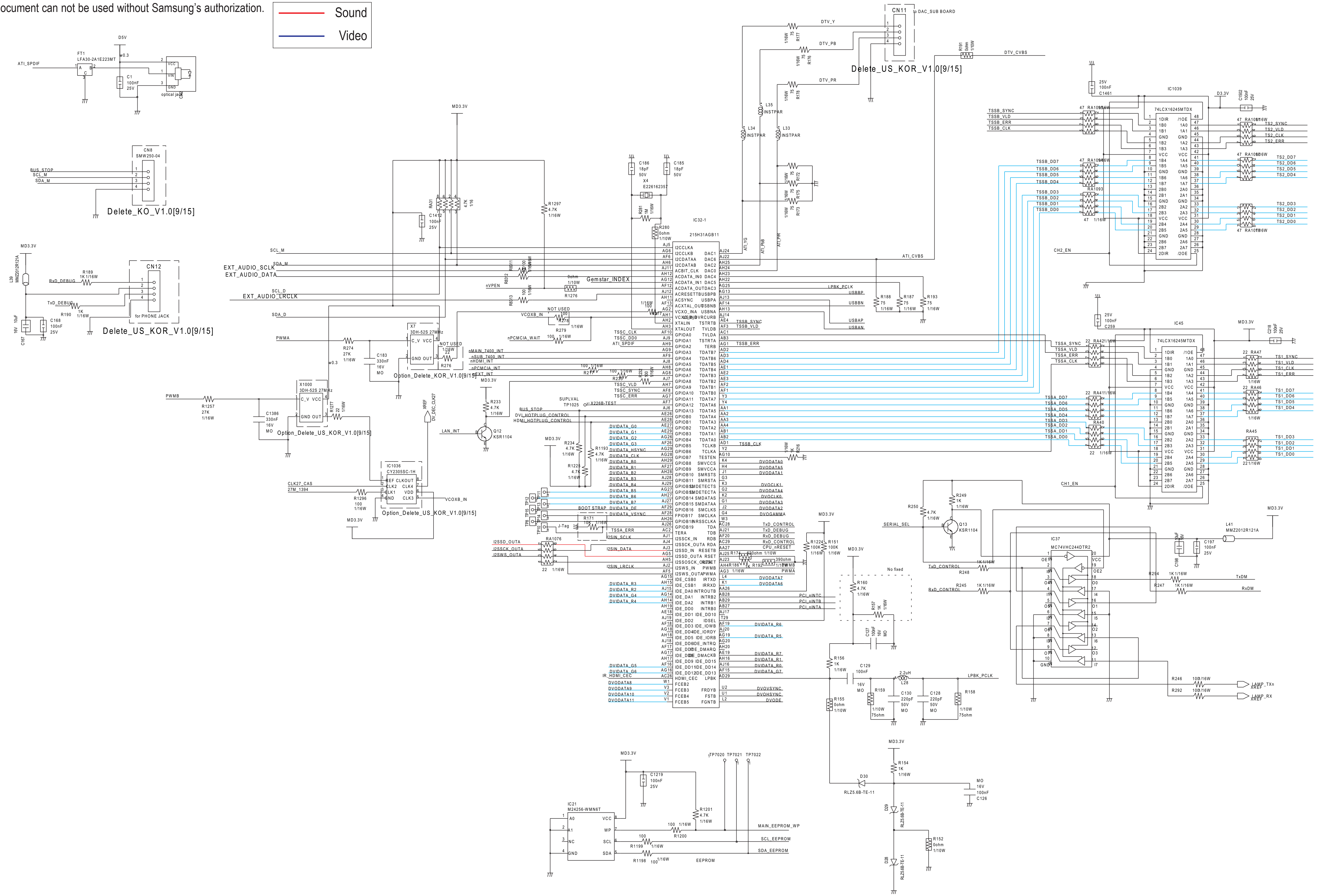

MD3.3V
BD2105
MMZ2012R121A
C2109
C2110
C2111
C2112
100nF
25V
IC42
MBM29LV160T-90FPT
R2121
10K
R2123
100
R2124
10K
SYS_nRESET
nVPEN
FLEX_nWR
FLEX_ADD17
FLEX_nRD
nCS_MF0
FLEX_ADD1
BD2106
MMZ2012R121A
C2113
C2114
C2115
C2116
10nF
50V
IC41
KFG5616X1M
R2120
0ohm
R2122
R2125
R2127
R2128
R2129
R2130
R2131
10K
FLEX_CLK
nCS_MF1
IC1035
74LCX16373MTDX
IC1037
74LCX16373MTDX
C1414
C1413
C1410
C1411
RA1085
RA1086
RA1087
RA1088
RA1089
RA1090
RA1091
RA1092
FLEX_ALE0
FLEX_ALE1
IC32-3
215H31AGB11
RA36
RA1073
RA1074
RA1075
R1218
2.2K
1/16W
PCI_nGNT1
PCI_nGNT0
IO1.8V
R1215
2.2K
1/16W
PCI_nREQ1
TP7
SUPLVAL
TP88
C1258
10nF
50V
1/10W
100Kohm
R1223
R153
33
1/16W
R1221
R1222
R1216
R1220
R1217
R1219
R1209
R1208
R1214
R1211
R1213
R1212
R1210
PCI_nINTA
PCI_nINTC
PCI_nINTB
PCI_nREQ0
PCI_nRST
PCI_nGNT0
PCI_nFRAME
PCI_nTRDY
PCI_nSTOP
PCI_nIRDY
PCI_nDEVSEL
PCI_nPERR
PCI_nSERR
MD3.3V
R1367
1K
1/16W
R1366
4.7K
1/16W
nVPEN_SUB
SEC_IO_nRST
Q1021
KSR1104
Option_Delete_KOR_V1.0
C1460
100nF
25V
FLEX_DATA0
FLEX_DATA1
FLEX_DATA2
FLEX_DATA3
FLEX_DATA4
FLEX_DATA5
FLEX_DATA6
FLEX_DATA7
FLEX_DATA8
FLEX_DATA9
FLEX_DATA10
FLEX_DATA11
FLEX_DATA12
FLEX_DATA13
FLEX_DATA14
FLEX_DATA15
TSSC_VLD
TSSC_ERR
TxDM
R361 delete
R356 / R1315 delete
R360 / R1311 delete
BUS_WIDTH
R1299 delete
R311 delete
R307 delete
R304 delete
R358 delete
R357 / R1314 delete
R362 / R1313 delete
R309 / R1301 delete
R305 / R1300 delete
R1302 delete
R1303 delete
R1279 delete
R1259 delete
R1258 delete
R293 delete
FLEX_DATA0
0 : LITTLE ENDIAN
0 : BIG ENDIAN
FLEX_DATA4
0 : ROM ENABLE
0 : ROM DISABLE
FLEX_DATA[6:5]
00 : MIPS
01: x86
10 : SH4
11 : Strong Arm
FLEX_DATA[8:7]
00 : Solo
01 : Reserved
10: Peer
11 : Peer+
FLEX_DATA12
0 : set USB no power switching bit on reset
1 : reset USB no power switching bit on reset
FLEX_DATA14
0 : MEM = 128MB, pcu = 64MB
1 : MEM = 64MB, pcu = 32MB
CPU_nRESET
HW_SERIAL_SEL
ANALOG_nRST
pRST
nCS_SF1
C1512
100nF
25V
For H/W DEBUG MODE SEL
R1321
R1328
R1322
R1327
R1399
TP1020
SUPLVAL
TP1021
R1326
R1325
R1323
R1324
R398
R397
4.7K
2ND_RESET
BR_SEL0
BR_SEL1
ADV721_nCS
BOOT_nCS1
IC47
M4LV-32/32-12VC48
nCS_MF0
nCS_MF1
nCS_SF0
nCS_LAN
nCS_SEF
R399
R400
R401
R402
R403
C1514
100nF
25V
FLEX_ADD24
FLEX_ADD25
FLEX_ADD26
FLEX_ADD27
FLEX_ADD23
BOOT_nCS0
PCI_nRST
BUS_WIDTH
SYS_nRESET
R1308
R355
4.7K
1/16W
FLEX_CLK
R354
nMICOM_INIT
RS232_SEL
C1501
100nF
25V
R373
4.7K
1/16W
SW1
KPT-1105A
C271
100nF
25V
nPCMCIA_CS
nRESET
R1329
4.7K
1/16W
CN15
C1513
100nF
25V
D3.3V
R372
1K
1/16W
IC44
KIA7025AF
C272
100nF
25V

10-2-3 DTV Module-3

This Document can not be used without Samsung's authorization.

Sound

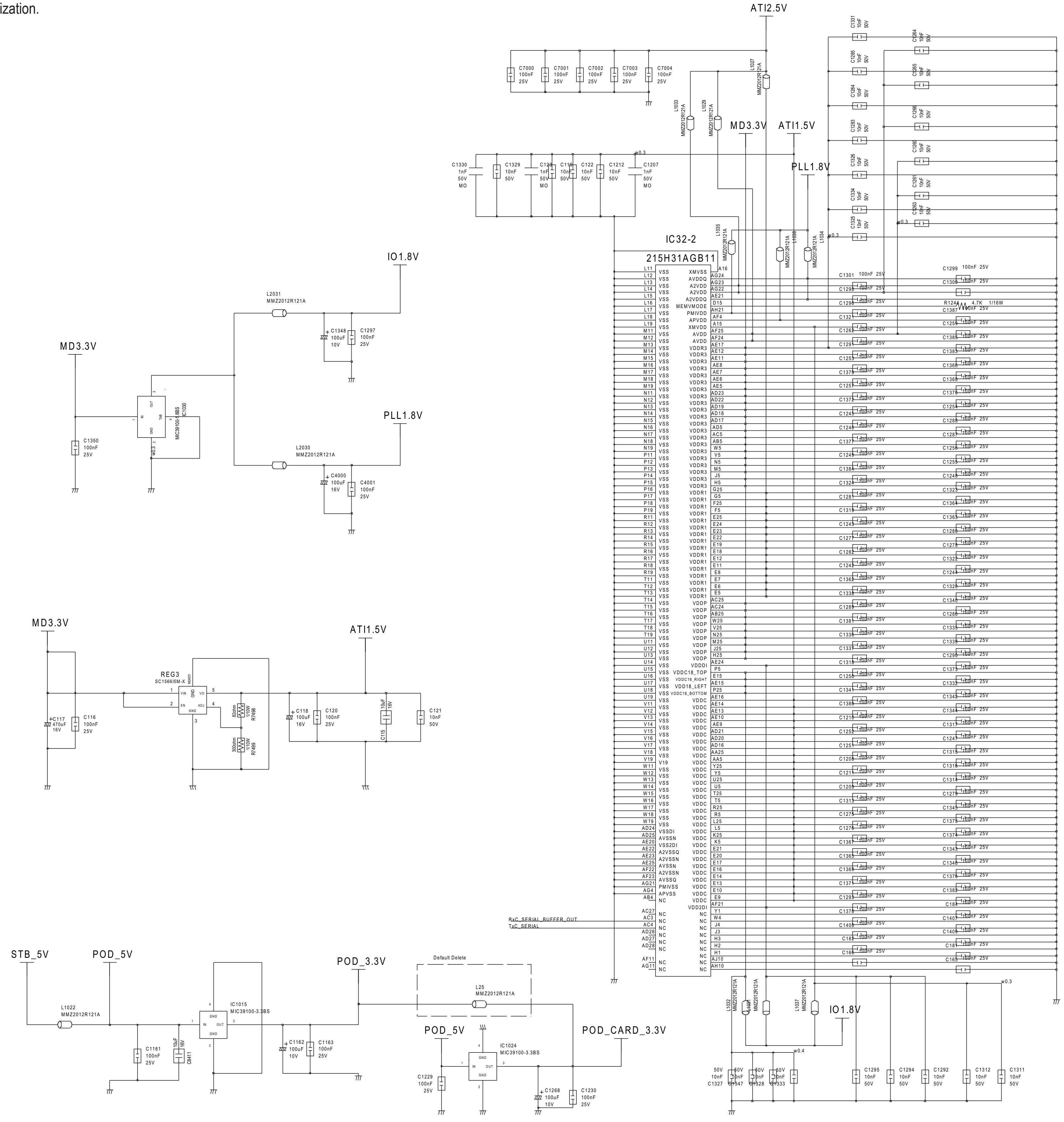
Video



ATI_SPDIF
FT1
LFA30-2A1E223MT
D5V
optical jack
CN8
SMW250-04
BUS_STOP
SCL_M
SDA_M
Delete_KO_V1.0[9/15]
MD3.3V
CN12
RxD_DEBUG
TxD_DEBUG
for PHONE JACK
Delete_US_KOR_V1.0[9/15]
EXT_AUDIO_SCLK
EXT_AUDIO_DATA
EXT_AUDIO_LRCLK
SCL_M
SDA_M
SCL_D
SDA_D
PWMA
PWMB
X7
3DH-52S 27MHz
X1000
3DH-52S 27MHz
Option_Delete_KOR_V1.0[9/15]
Option_Delete_US_KOR_V1.0[9/15]
IC1036
CY2305SC-1H
CLK27_CAS
27M_1394
VCOXB_IN
Option_Delete_US_KOR_V1.0[9/15]
LAN_INT
Q12
KSR1104
nMAIN_7400_INT
nSUB_7400_INT
nHDMI_INT
nPCMCIA_INT
EXT_INT
nVPEN
nPCMCIA_WAIT
Gemstar_INDEX
NOT USED
SUPLVAL
BUS_STOP
DVI_HOTPLUG_CONTROL
HDMI_HOTPLUG_CONTROL
BOOT STRAP
J-Tag
I2SSD_OUTA
I2SSCK_OUTA
I2SWS_OUTA
I2SIN_SCLK
I2SIN_DATA
I2SIN_LRCLK
IR_HDMI_CEC
X4
E226162357
IC32-1
215H31AGB11
ATI_YG
ATI_PB
ATI_PR
ATI_CVBS
CN11
DAC_SUB BOARD
DTV_Y
DTV_PB
DTV_PR
DTV_CVBS
Delete_US_KOR_V1.0[9/15]
L35 INSTPAR
L34 INSTPAR
L33 INSTPAR
LPBK_PCLK
USBBP
USBBN
USBAP
USBAN
TSSB_SYNC
TSSB_VLD
TSSB_ERR
TSSB_CLK
IC1039
74LCX16245MTDX
TS2_SYNC
TS2_VLD
TS2_CLK
TS2_ERR
CH2_EN
IC45
74LCX16245MTDX
TSSA_SYNC
TSSA_VLD
TSSA_ERR
TSSA_CLK
TS1_SYNC
TS1_VLD
TS1_CLK
TS1_ERR
CH1_EN
SERIAL_SEL
Q13
KSR1104
IC37
MC74VHC244DTR2
TxD_CONTROL
RxD_CONTROL
TxDM
RxDM
L41
MMZ2012R121A
LAMP_TXn
LAMP_RX
XREF
Not fixed
PCI_nINTC
PCI_nINTB
PCI_nINTA
L28
D30
RLZ5.6B-TE-11
D29
RLZ5.6B-TE-11
D28
RLZ5.6B-TE-11
TP7020
TP7021
TP7022
IC21
M24256-WMN6T
MAIN_EEPROM_WP
SCL_EEPROM
SDA_EEPROM
EEPROM

10-2-4 DTV Module-4

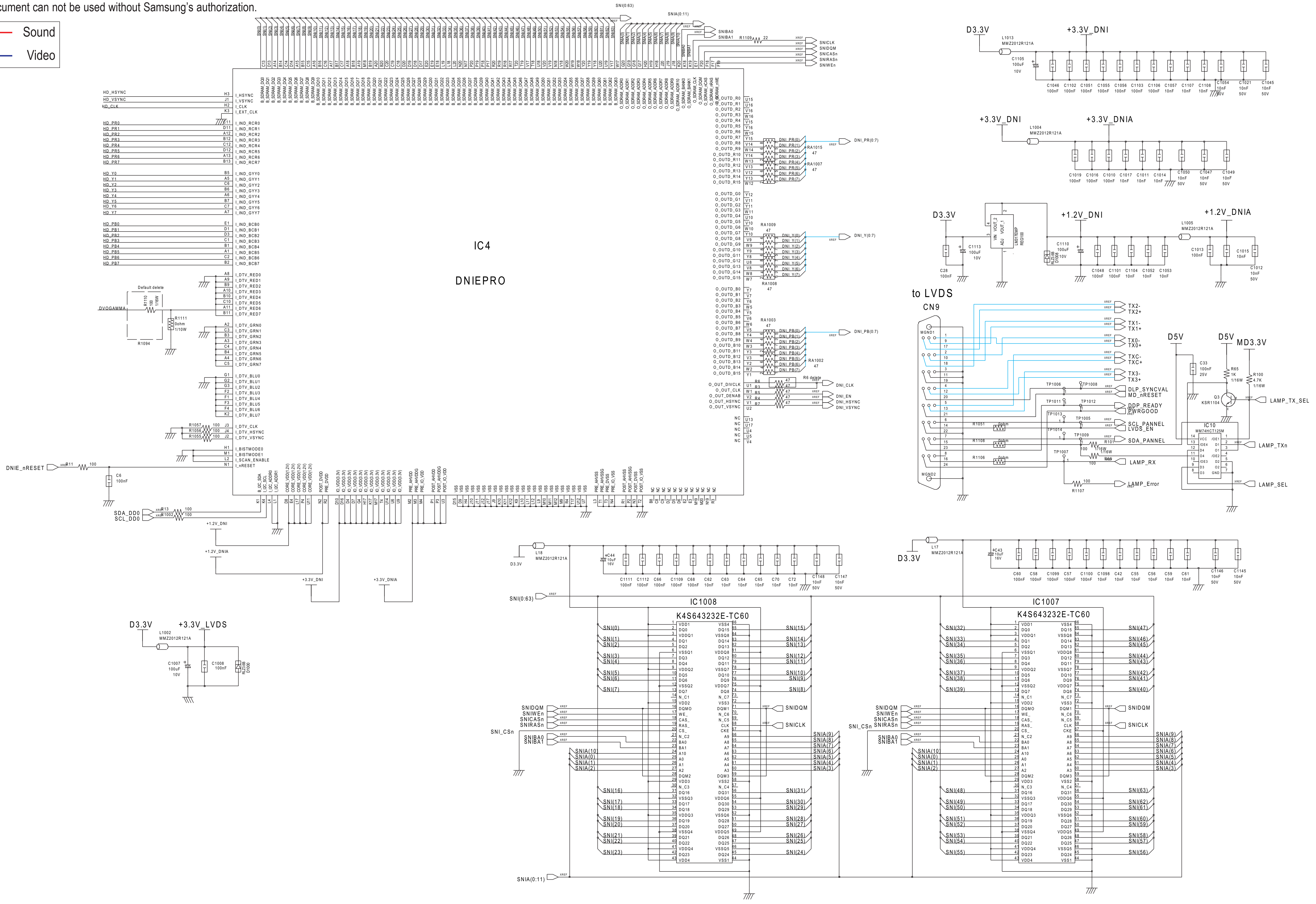
This Document can not be used without Samsung's authorization.


ATI2.5V
MD3.3V
ATI1.5V
PLL1.8V
IC32-2
215H31AGB11
IO1.8V
L2031
MMZ2012R121A
L2030
MMZ2012R121A
IC1030
MIC39100-1.8BS
C1350
C1348
C1297
C4000
C4001
REG3
SC1566I5M-X
R7498
R7499
C117
C116
C118
C120
C115
C121
RxC_SERIAL_BUFFER_OUT
TxC_SERIAL
STB_5V
POD_5V
POD_3.3V
Default Delete
L25
MMZ2012R121A
L1022
MMZ2012R121A
IC1015
MIC39100-3.3BS
C1161
C8411
C1162
C1163
IC1024
MIC39100-3.3BS
POD_CARD_3.3V
C1229
C1268
C1230
C7000
C7001
C7002
C7003
C7004
C1330
C1329
C1207
C1295
C1294
C1292
C1312
C1311
C1327

10-2-5 DTV Module-5

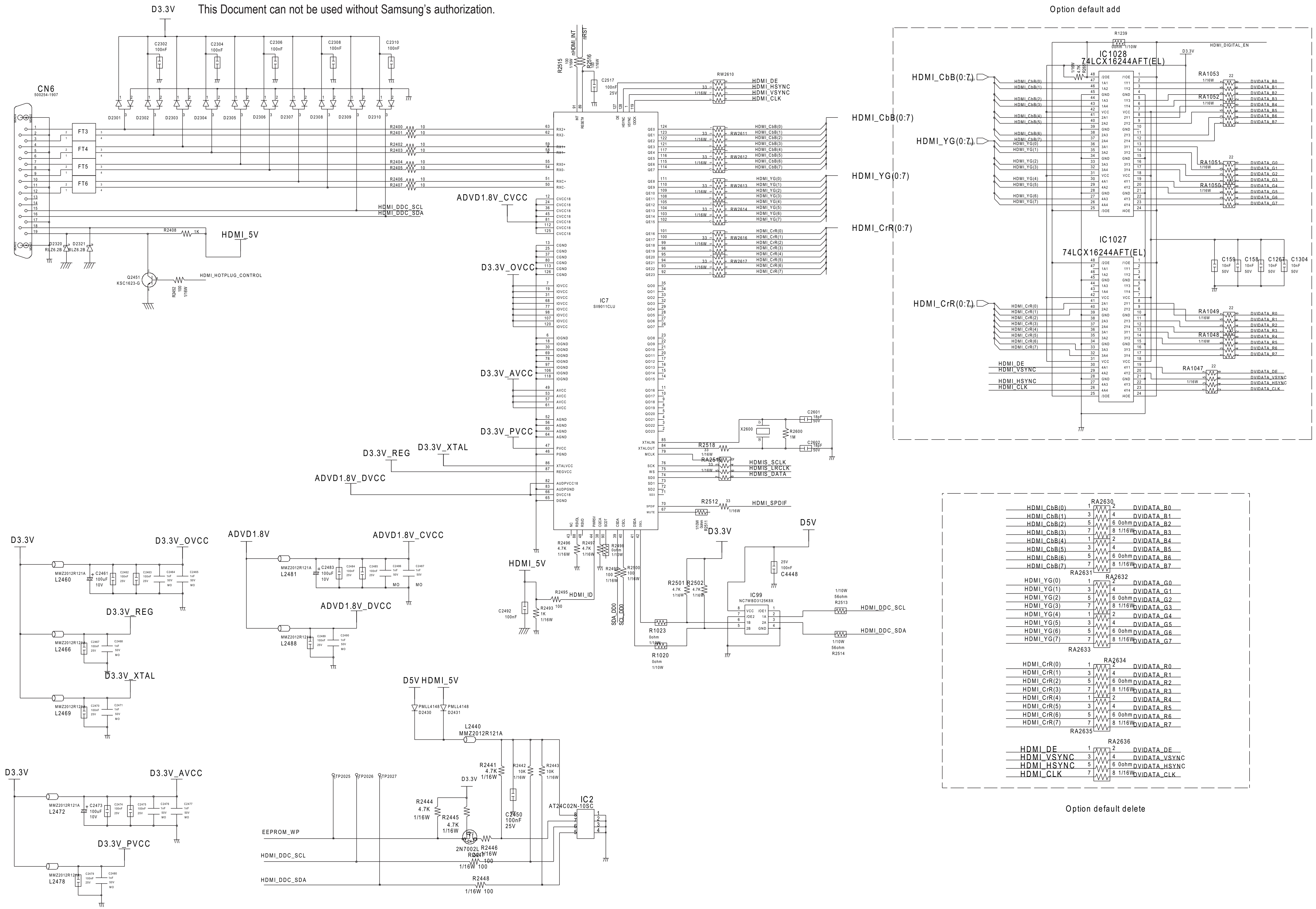
This Document can not be used without Samsung's authorization.

🟥	Sound
🟦	Video


IC4
DNIEPRO
IC1008
K4S643232E-TC60
IC1007
K4S643232E-TC60
IC10
MM74HCT125M
to LVDS
CN9
D3.3V
+3.3V_DNI
+3.3V_DNIA
+1.2V_DNI
+1.2V_DNIA
+3.3V_LVDS
D5V
MD3.3V
DNIE_nRESET
SDA_DDO
SCL_DDO
DVOGAMMA
SNI(0:63)
SNIA(0:11)
DNI_PR(0:7)
DNI_Y(0:7)
DNI_PB(0:7)
DNI_CLK
DNI_EN
DNI_HSYNC
DNI_VSYNC
TX2-
TX2+
TX1-
TX1+
TX0-
TX0+
TXC-
TXC+
TX3-
TX3+
DLP_SYNCVAL
MD_nRESET
DDP_READY
PWRGOOD
SCL_PANNEL
LVDS_EN
SDA_PANNEL
LAMP_RX
LAMP_Error
LAMP_TX_SEL
LAMP_TXn
LAMP_SEL
SNICLK
SNIDQM
SNICASn
SNIRASn
SNIWEn
SNI_CSn
SNIBA0
SNIBA1
Default delete
R6 delete

10-2-6 DTV Module-6

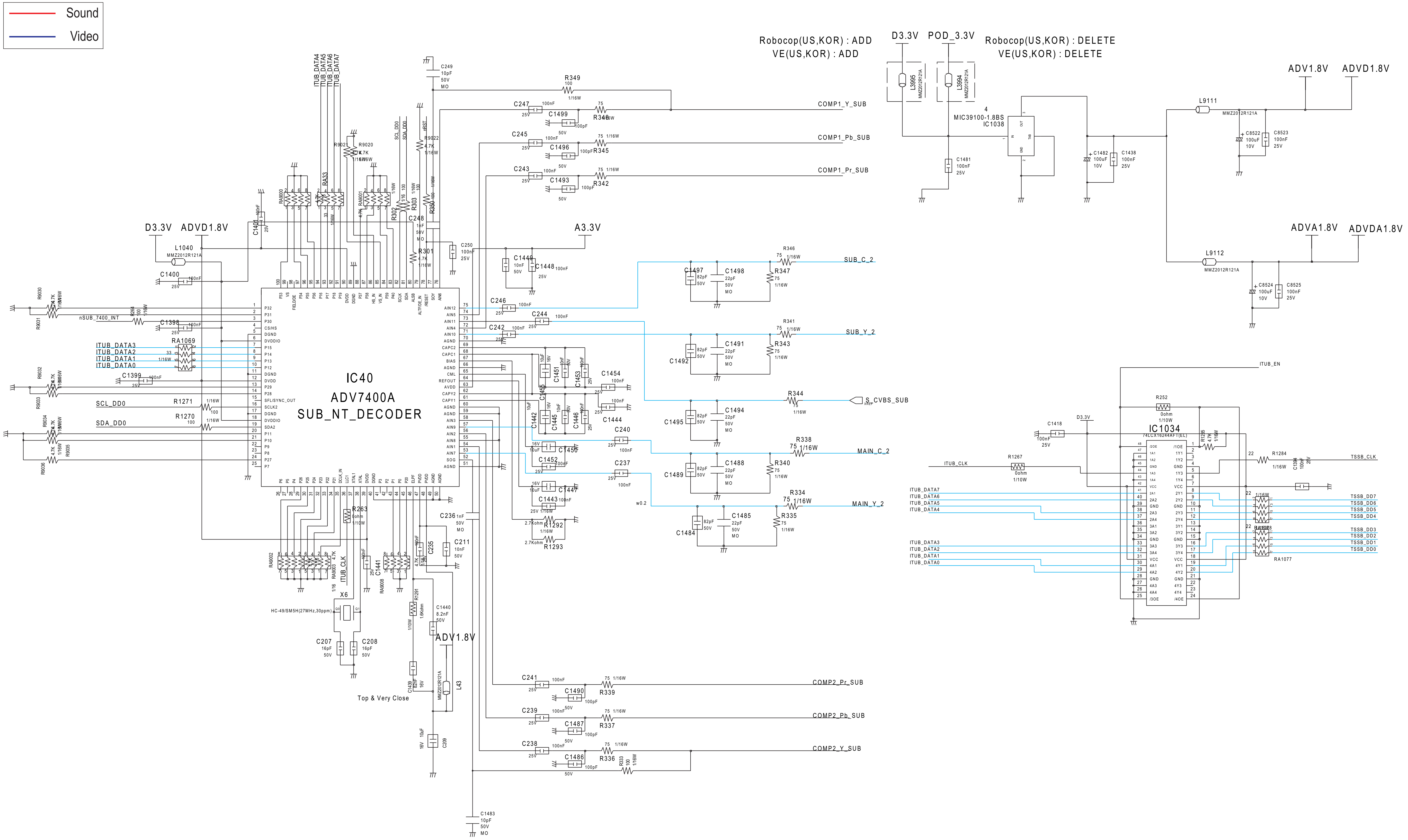
This Document can not be used without Samsung's authorization.



D3.3V
CN6
FT3
FT4
FT5
FT6
HDMI_DDC_SCL
HDMI_DDC_SDA
HDMI_5V
HDMI_HOTPLUG_CONTROL
Q2451 KSC1623-G
ADVD1.8V_CVCC
D3.3V_OVCC
D3.3V_AVCC
D3.3V_PVCC
D3.3V_REG
D3.3V_XTAL
ADVD1.8V_DVCC
IC7 SII9011CLU
HDMI_DE
HDMI_HSYNC
HDMI_VSYNC
HDMI_CLK
HDMI_CbB(0:7)
HDMI_YG(0:7)
HDMI_CrR(0:7)
X2600
HDMIS_SCLK
HDMIS_LRCLK
HDMIS_DATA
HDMI_SPDIF
HDMI_ID
SDA_DD0
SCL_DD0
D5V
IC99 NC7WBD3125K8X
C4448
Option default add
IC1028 74LCX16244AFT(EL)
IC1027 74LCX16244AFT(EL)
HDMI_DIGITAL_EN
DVIDATA_B0 … DVIDATA_B7
DVIDATA_G0 … DVIDATA_G7
DVIDATA_R0 … DVIDATA_R7
DVIDATA_DE
DVIDATA_VSYNC
DVIDATA_HSYNC
DVIDATA_CLK
Option default delete
RA2630
RA2631
RA2632
RA2633
RA2634
RA2635
RA2636
ADVD1.8V
L2460
L2466
L2469
L2472
L2478
L2481
L2488
L2440 MMZ2012R121A
D2430
D2431
IC2 AT24C02N-10SC
2N7002L
EEPROM_WP
TP2025
TP2026
TP2027

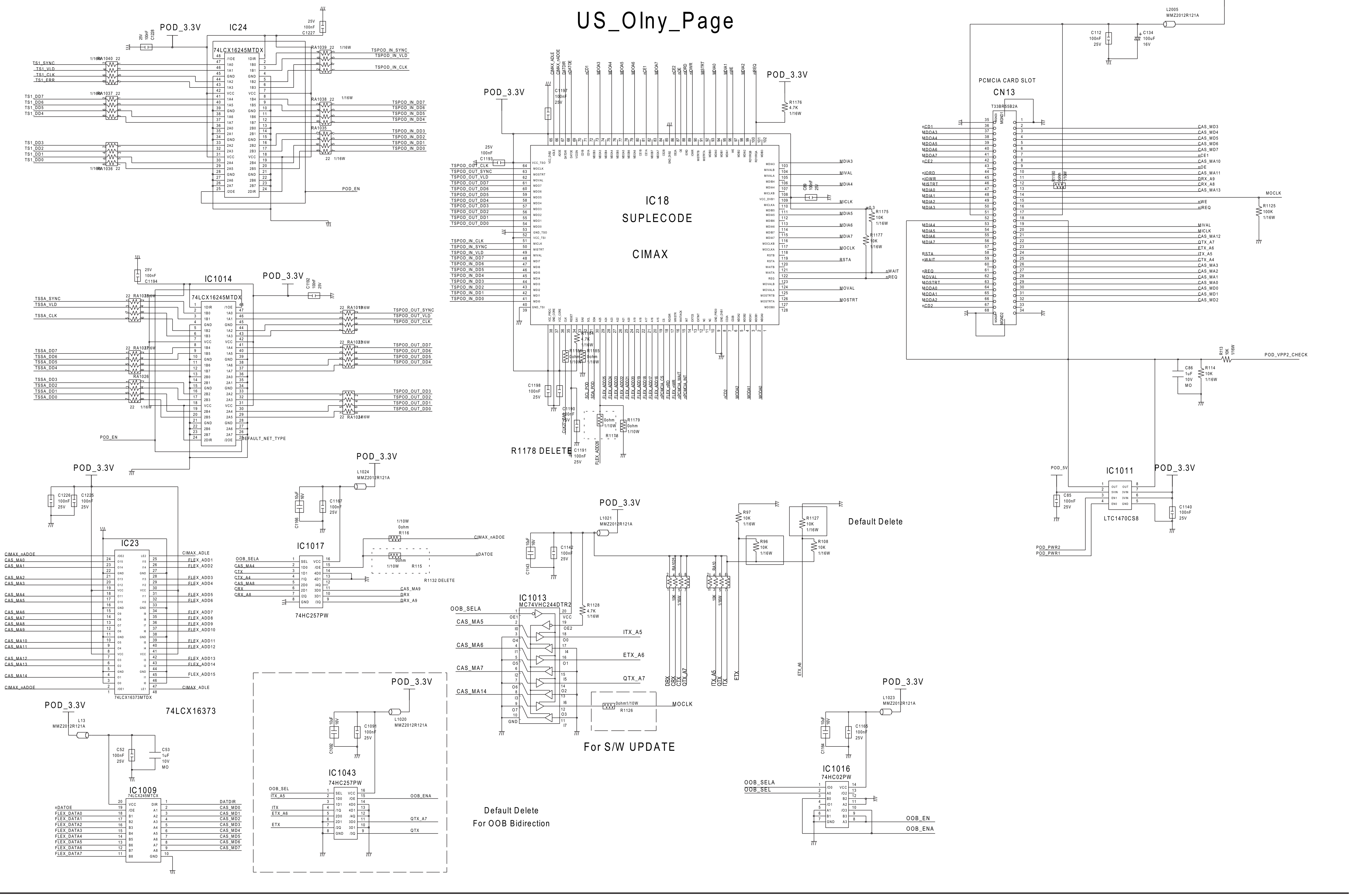
10-2-7 DTV Module-7

This Document can not be used without Samsung's authorization.


Sound
Video
Robocop(US,KOR) : ADD
VE(US,KOR) : ADD
D3.3V
POD_3.3V
Robocop(US,KOR) : DELETE
VE(US,KOR) : DELETE
ADV1.8V
ADVD1.8V
ADVA1.8V
ADVDA1.8V
D3.3V
ADVD1.8V
A3.3V
IC40
ADV7400A
SUB_NT_DECODER
MIC39100-1.8BS
IC1038
L3995
L3994
L9111
L9112
L1040
IC1034
74LCX16244AFT(EL)
COMP1_Y_SUB
COMP1_Pb_SUB
COMP1_Pr_SUB
SUB_C_2
SUB_Y_2
S_CVBS_SUB
MAIN_C_2
MAIN_Y_2
COMP2_Pr_SUB
COMP2_Pb_SUB
COMP2_Y_SUB
ITUB_DATA4
ITUB_DATA5
ITUB_DATA6
ITUB_DATA7
ITUB_DATA3
ITUB_DATA2
ITUB_DATA1
ITUB_DATA0
nSUB_7400_INT
SCL_DD0
SDA_DD0
ITUB_CLK
ITUB_EN
TSSB_CLK
TSSB_DD7
TSSB_DD6
TSSB_DD5
TSSB_DD4
TSSB_DD3
TSSB_DD2
TSSB_DD1
TSSB_DD0
RA1069
RA1077
X6
HC-49/SM5H(27MHz,30ppm)
ADV1.8V
L43
Top & Very Close
C207
C208
C1483

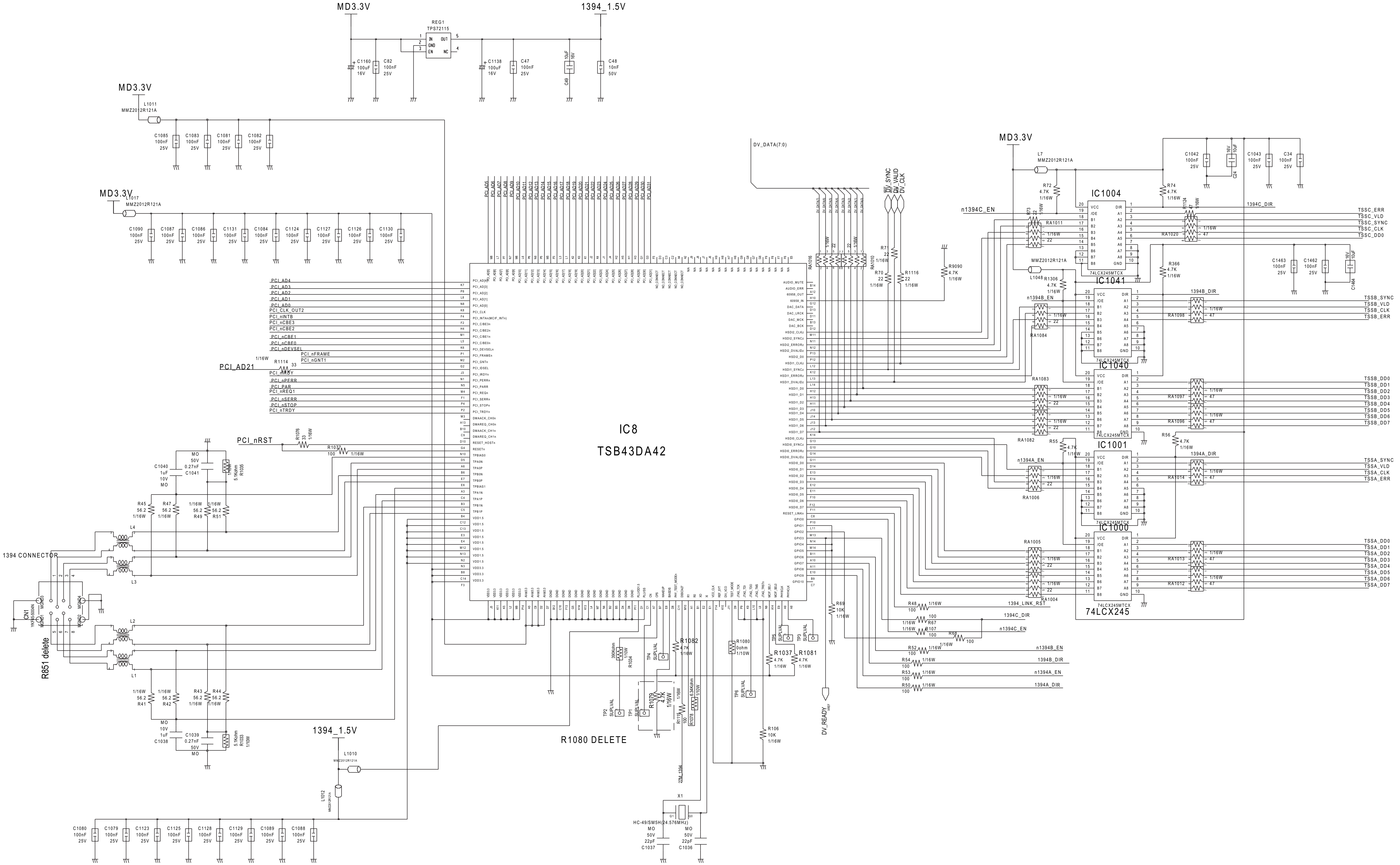
10-2-8 DTV Module-8

This Document can not be used without Samsung's authorization.


US_Olny_Page
POD_CARD_3.3V
POD_3.3V
IC24
74LCX16245MTDX
IC1014
74LCX16245MTDX
IC18
SUPLECODE
CIMAX
PCMCIA CARD SLOT
CN13
T33BR55B2A
R1178 DELETE
IC23
74LCX16373MTDX
74LCX16373
IC1009
74LCX245MTCX
IC1017
74HC257PW
IC1043
74HC257PW
IC1013
MC74VHC244DTR2
For S/W UPDATE
Default Delete
Default Delete
For OOB Bidirection
IC1011
LTC1470CS8
IC1016
74HC02PW
R1132 DELETE
TS1_SYNC
TS1_VLD
TS1_CLK
TS1_ERR
TSPOD_IN_SYNC
TSPOD_IN_VLD
TSPOD_IN_CLK
TSPOD_OUT_SYNC
TSPOD_OUT_VLD
TSPOD_OUT_CLK
POD_EN
DEFAULT_NET_TYPE
CIMAX_nADOE
CIMAX_ADLE
OOB_SELA
OOB_SEL
OOB_EN
OOB_ENA
MOCLK
POD_VPP2_CHECK
POD_PWR2
POD_PWR1
POD_5V

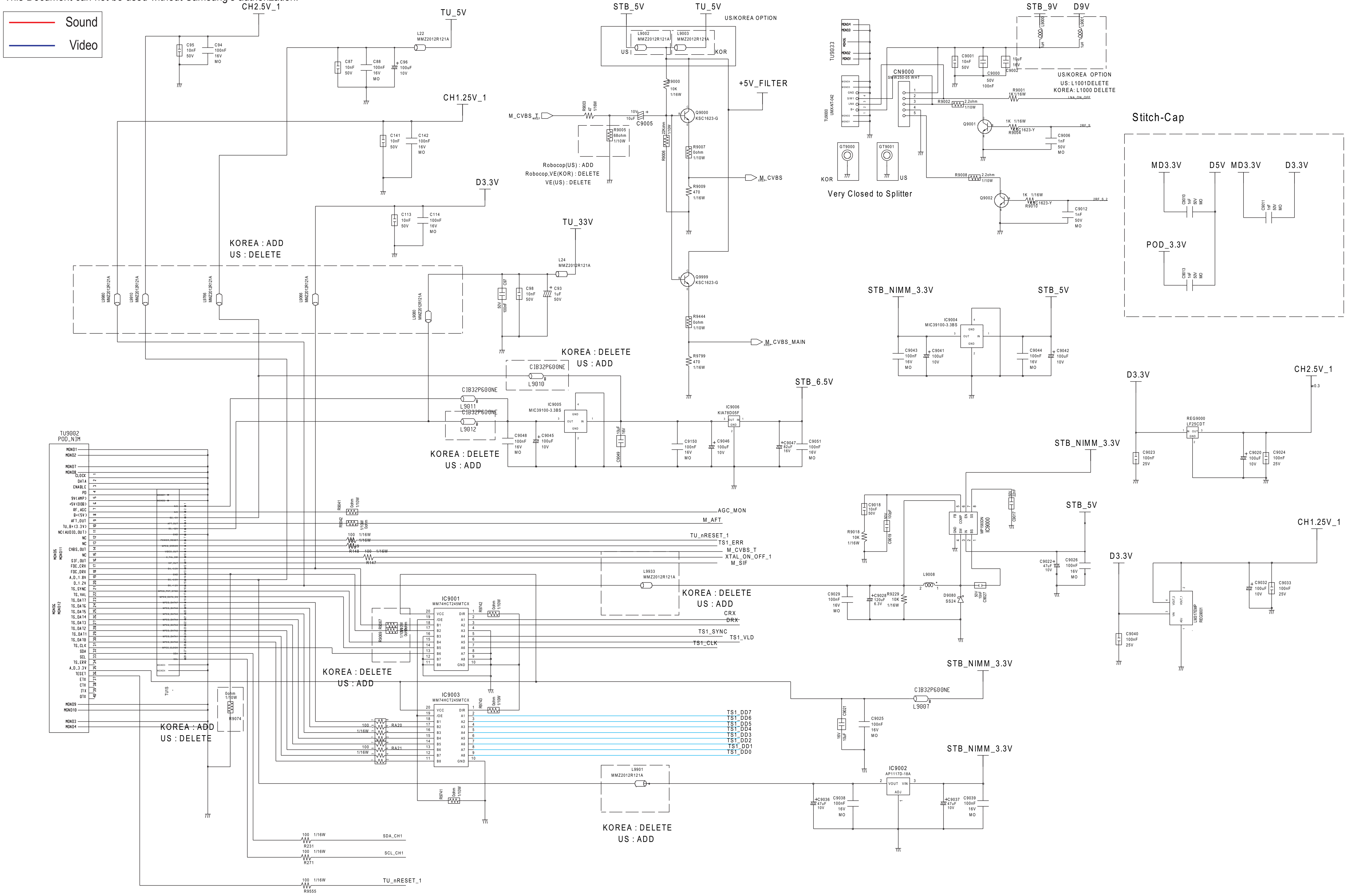
10-2-9 DTV Module-9

This Document can not be used without Samsung's authorization.


MD3.3V
1394_1.5V
REG1
TPS72115
C1160
C82
C1138
C47
C49
C48
L1011
MMZ2012R121A
C1085
C1083
C1081
C1082
L1017
C1090
C1087
C1086
C1131
C1084
C1124
C1127
C1126
C1130
DV_DATA(7:0)
DV_SYNC
DV_VALID
DV_CLK
PCI_AD4
PCI_AD3
PCI_AD2
PCI_AD1
PCI_AD0
PCI_CLK_OUT2
PCI_nINTB
PCI_nCBE3
PCI_nCBE2
PCI_nCBE1
PCI_nCBE0
PCI_nDEVSEL
PCI_nFRAME
PCI_nGNT1
PCI_AD21
R1114
PCI_nIRDY
PCI_nPERR
PCI_PAR
PCI_nREQ1
PCI_nSERR
PCI_nSTOP
PCI_nTRDY
PCI_nRST
R1076
R1077
IC8
TSB43DA42
1394 CONNECTOR
CN1
L1
L3
L4
R45
R47
R49
R51
R41
R42
R43
R44
C1040
C1041
C1038
C1039
R851 delete
R1080 DELETE
R1082
R1080
R1037
R1081
R1034
R1079
R1078
R106
R69
TP1
TP2
TP3
TP4
TP5
TP6
X1
HC-49/SM5H(24.576MHz)
C1037
C1036
L1010
L1012
C1080
C1079
C1123
C1125
C1128
C1129
C1089
C1088
DV_READY
L7
IC1004
IC1041
IC1040
IC1001
IC1000
74LCX245MTCX
74LCX245
n1394C_EN
1394C_DIR
n1394B_EN
1394B_DIR
n1394A_EN
1394A_DIR
1394_LINK_RST
RA1011
RA1020
RA1084
RA1098
RA1083
RA1082
RA1097
RA1096
RA1006
RA1014
RA1005
RA1004
RA1013
RA1012
RA1016
RA1010
R9090
R71
R70
R1116
R72
R73
R74
R366
R55
R56
R1306
L1048
C1042
C1043
C34
C24
C1463
C1462
C1464
R48
R67
R68
R52
R54
R53
R50
TSSC_ERR
TSSC_VLD
TSSC_SYNC
TSSC_CLK
TSSC_DD0
TSSB_SYNC
TSSB_VLD
TSSB_CLK
TSSB_ERR
TSSB_DD0
TSSB_DD1
TSSB_DD2
TSSB_DD3
TSSB_DD4
TSSB_DD5
TSSB_DD6
TSSB_DD7
TSSA_SYNC
TSSA_VLD
TSSA_CLK
TSSA_ERR
TSSA_DD0
TSSA_DD1
TSSA_DD2
TSSA_DD3
TSSA_DD4
TSSA_DD5
TSSA_DD6
TSSA_DD7

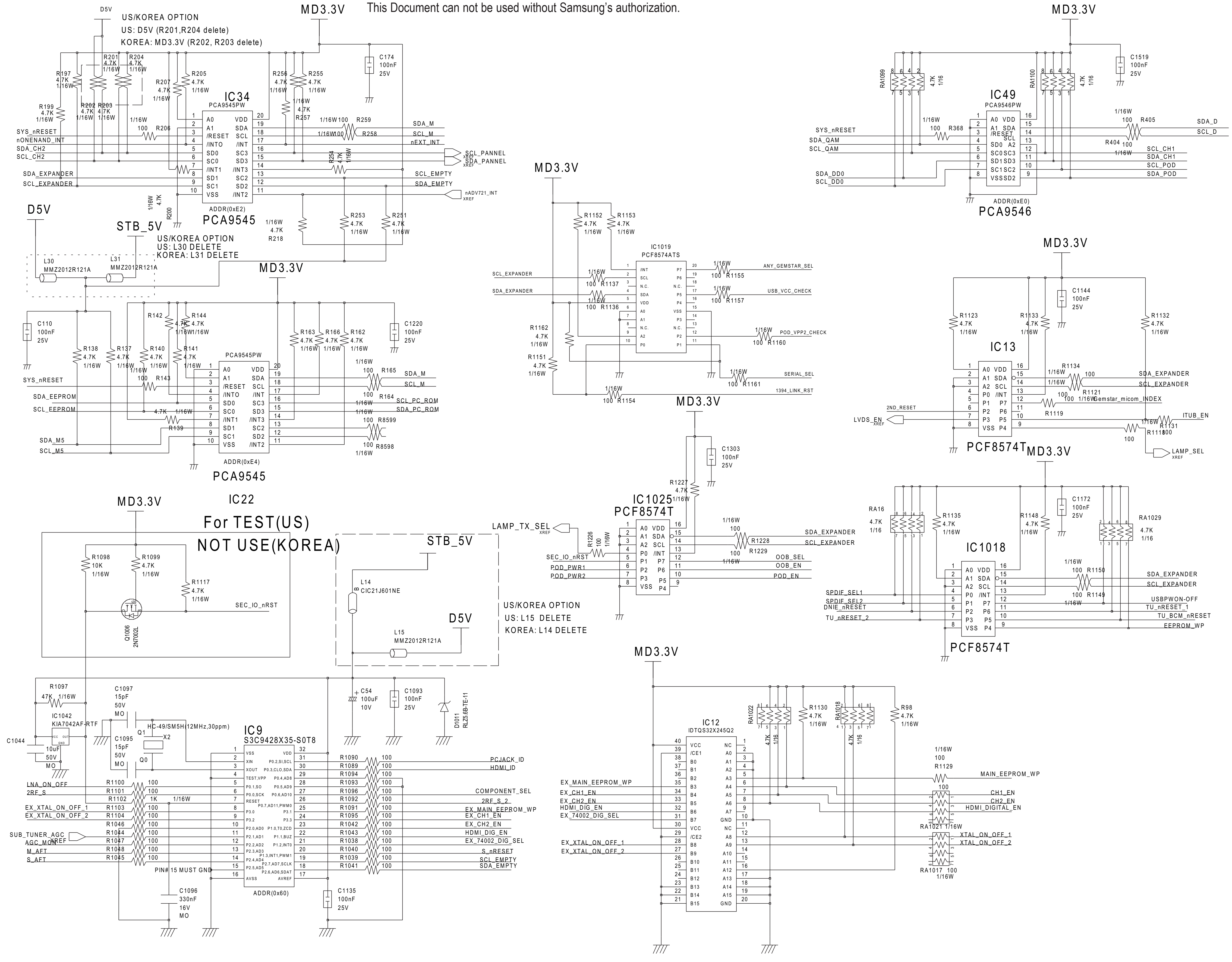
10-2-10 DTV Module-10

This Document can not be used without Samsung's authorization.

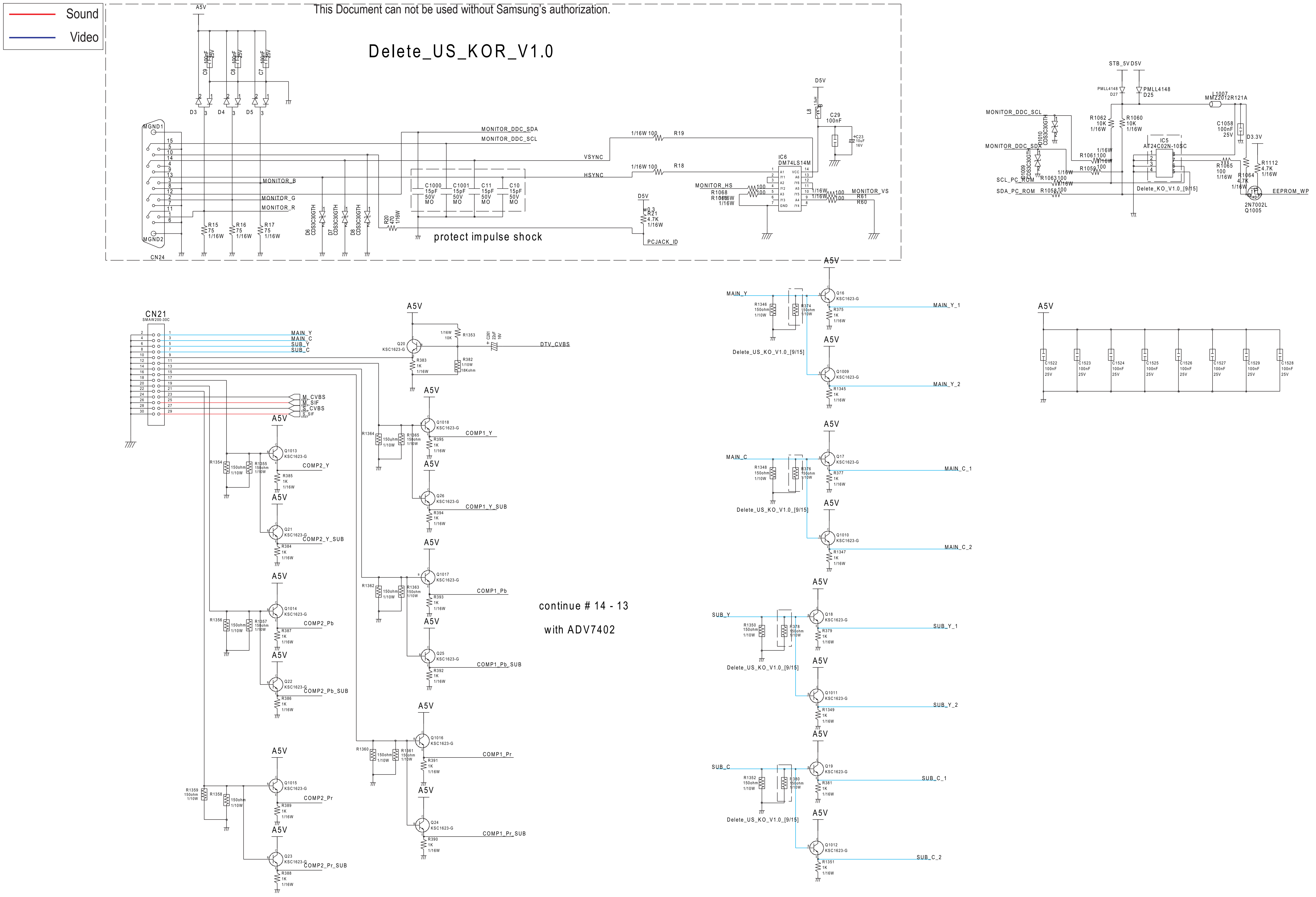

Sound
Video
CH2.5V_1
TU_5V
STB_5V
TU_5V
US/KOREA OPTION
STB_9V
D9V
+5V_FILTER
CH1.25V_1
D3.3V
M_CVBS_T
Robocop(US) : ADD
Robocop,VE(KOR) : DELETE
VE(US) : DELETE
M_CVBS
TU_33V
KOREA : ADD
US : DELETE
KOREA : DELETE
US : ADD
CN9000
US/KOREA OPTION
US: L1001DELETE
KOREA: L1000 DELETE
Very Closed to Splitter
KOR
US
Stitch-Cap
MD3.3V
D5V
MD3.3V
D3.3V
POD_3.3V
STB_NIMM_3.3V
STB_5V
IC9004
MIC39100-3.3BS
M_CVBS_MAIN
STB_6.5V
IC9005
MIC39100-3.3BS
IC9006
KIA78D05F
D3.3V
CH2.5V_1
REG9000
LF25CDT
STB_NIMM_3.3V
TU9002
POD_NIM
AGC_MON
M_AFT
TU_nRESET_1
TS1_ERR
M_CVBS_T
XTAL_ON_OFF_1
M_SIF
IC9001
MM74HCT245MTCX
CRX
DRX
TS1_SYNC
TS1_VLD
TS1_CLK
STB_5V
CH1.25V_1
D3.3V
IC9003
MM74HCT245MTCX
TS1_DD7
TS1_DD6
TS1_DD5
TS1_DD4
TS1_DD3
TS1_DD2
TS1_DD1
TS1_DD0
STB_NIMM_3.3V
CIB32P600NE
L9007
STB_NIMM_3.3V
IC9002
AP1117D-18A
L9901
MMZ2012R121A
SDA_CH1
SCL_CH1
TU_nRESET_1
R231
R271
R9555

10-2-11 DTV Module-11

This Document can not be used without Samsung's authorization.


US/KOREA OPTION
US: D5V (R201,R204 delete)
KOREA: MD3.3V (R202, R203 delete)
MD3.3V
IC34
PCA9545PW
ADDR(0xE2)
PCA9545
SDA_M
SCL_M
nEXT_INT
SCL_PANNEL
SDA_PANNEL
SCL_EMPTY
SDA_EMPTY
nADV721_INT
SYS_nRESET
nONENAND_INT
SDA_CH2
SCL_CH2
SDA_EXPANDER
SCL_EXPANDER
D5V
STB_5V
US/KOREA OPTION
US: L30 DELETE
KOREA: L31 DELETE
L30 MMZ2012R121A
L31 MMZ2012R121A
ADDR(0xE4)
SDA_EEPROM
SCL_EEPROM
SDA_M5
SCL_M5
SDA_PC_ROM
SCL_PC_ROM
IC1019
PCF8574ATS
ANY_GEMSTAR_SEL
USB_VCC_CHECK
POD_VPP2_CHECK
SERIAL_SEL
1394_LINK_RST
IC49
PCA9546PW
ADDR(0xE0)
PCA9546
SDA_QAM
SCL_QAM
SDA_DD0
SCL_DD0
SDA_D
SCL_D
SCL_CH1
SDA_CH1
SCL_POD
SDA_POD
IC13
PCF8574T
2ND_RESET
LVDS_EN
Gemstar_micom_INDEX
ITUB_EN
LAMP_SEL
IC1025
PCF8574T
LAMP_TX_SEL
SEC_IO_nRST
POD_PWR1
POD_PWR2
OOB_SEL
OOB_EN
POD_EN
IC1018
PCF8574T
SPDIF_SEL1
SPDIF_SEL2
DNIE_nRESET
TU_nRESET_2
USBPWON-OFF
TU_nRESET_1
TU_BCM_nRESET
EEPROM_WP
MD3.3V
IC22
For TEST(US)
NOT USE(KOREA)
Q1006 2N7002L
SEC_IO_nRST
STB_5V
L14 CIC21J601NE
L15 MMZ2012R121A
US/KOREA OPTION
US: L15 DELETE
KOREA: L14 DELETE
IC1042 KIA7042AF-RTF
HC-49/SM5H(12MHz,30ppm)
IC9
S3C9428X35-S0T8
ADDR(0x60)
PIN# 15 MUST GND
LNA_ON_OFF
2RF_S
EX_XTAL_ON_OFF_1
EX_XTAL_ON_OFF_2
SUB_TUNER_AGC
AGC_MON
M_AFT
S_AFT
PCJACK_ID
HDMI_ID
COMPONENT_SEL
2RF_S_2
EX_MAIN_EEPROM_WP
EX_CH1_EN
EX_CH2_EN
HDMI_DIG_EN
EX_74002_DIG_SEL
S_nRESET
SCL_EMPTY
SDA_EMPTY
D1011 RLZ5.6B-TE-11
IC12
IDTQS32X245Q2
MAIN_EEPROM_WP
CH1_EN
CH2_EN
HDMI_DIGITAL_EN
XTAL_ON_OFF_1
XTAL_ON_OFF_2
RA1021
RA1017

10-2-12 DTV Module-12

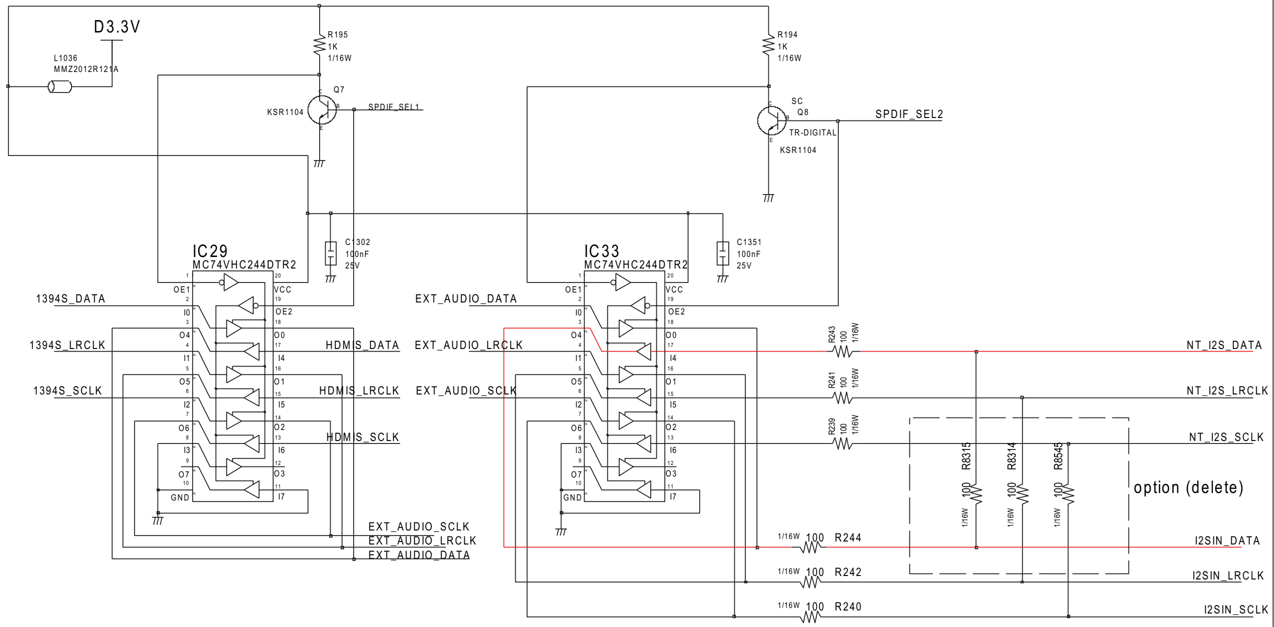

Sound
Video
This Document can not be used without Samsung's authorization.
Delete_US_KOR_V1.0
A5V
D5V
STB_5V
D3.3V
CN24
MGND1
MGND2
MONITOR_DDC_SDA
MONITOR_DDC_SCL
VSYNC
HSYNC
MONITOR_B
MONITOR_G
MONITOR_R
MONITOR_HS
MONITOR_VS
IC6 DM74LS14M
C1000 15pF 50V MO
C1001 15pF 50V MO
C11 15pF 50V MO
C10 15pF 50V MO
protect impulse shock
PCJACK_ID
R21 4.7K 1/16W
R15 75 1/16W
R16 75 1/16W
R17 75 1/16W
C29 100nF
L8
IC5 AT24C02N-10SC
Delete_KO_V1.0_[9/15]
SCL_PC_ROM
SDA_PC_ROM
EEPROM_WP
2N7002L Q1005
PMLL4148 D27
PMLL4148 D25
L1007 MMZ2012R121A
C1058 100nF 25V
R1062 10K 1/16W
R1060 10K 1/16W
R1065 100 1/16W
R1064 4.7K 1/16W
R1112 4.7K 1/16W
CN21 SMAW200-30C
MAIN_Y
MAIN_C
SUB_Y
SUB_C
M_CVBS
M_SIF
S_CVBS
S_SIF
Q20 KSC1623-G
DTV_CVBS
R1353 10K 1/16W
R382 1/10W 18Kohm
R383 1K 1/16W
Q1018 KSC1623-G
COMP1_Y
Q26 KSC1623-G
COMP1_Y_SUB
Q1017 KSC1623-G
COMP1_Pb
Q25 KSC1623-G
COMP1_Pb_SUB
Q1016 KSC1623-G
COMP1_Pr
Q24 KSC1623-G
COMP1_Pr_SUB
Q1013 KSC1623-G
COMP2_Y
Q21 KSC1623-G
COMP2_Y_SUB
Q1014 KSC1623-G
COMP2_Pb
Q22 KSC1623-G
COMP2_Pb_SUB
Q1015 KSC1623-G
COMP2_Pr
Q23 KSC1623-G
COMP2_Pr_SUB
continue # 14 - 13
with ADV7402
Q16 KSC1623-G
MAIN_Y_1
Q1009 KSC1623-G
MAIN_Y_2
Q17 KSC1623-G
MAIN_C_1
Q1010 KSC1623-G
MAIN_C_2
Q18 KSC1623-G
SUB_Y_1
Q1011 KSC1623-G
SUB_Y_2
Q19 KSC1623-G
SUB_C_1
Q1012 KSC1623-G
SUB_C_2
Delete_US_KO_V1.0_[9/15]
C1522 100nF 25V
C1523 100nF 25V
C1524 100nF 25V
C1525 100nF 25V
C1526 100nF 25V
C1527 100nF 25V
C1529 100nF 25V
C1528 100nF 25V

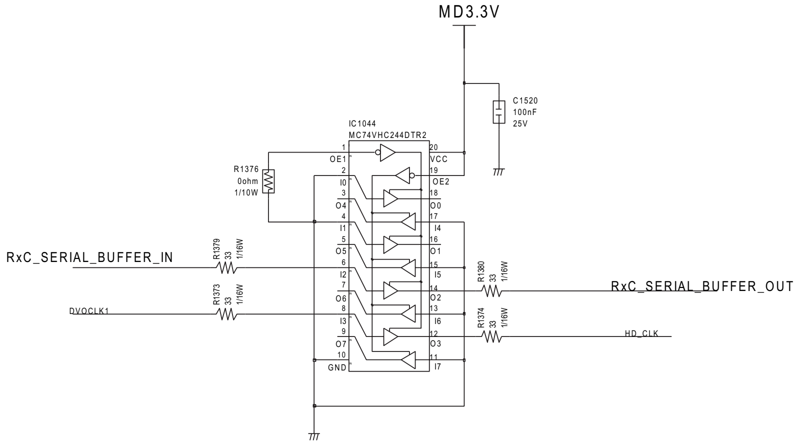
10-2-13 DTV Module-13

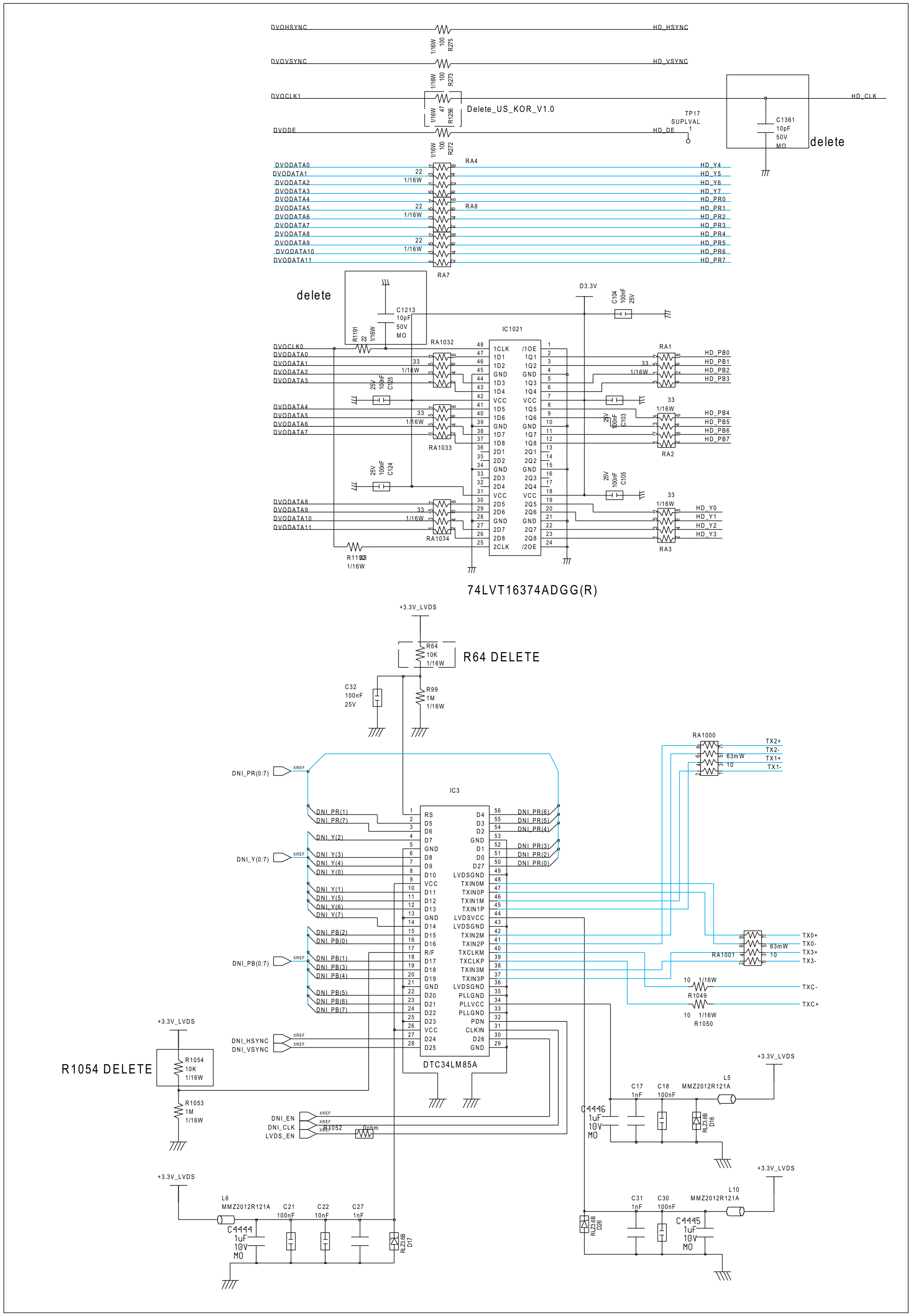
This Document can not be used without Samsung's authorization.

Sound

Video

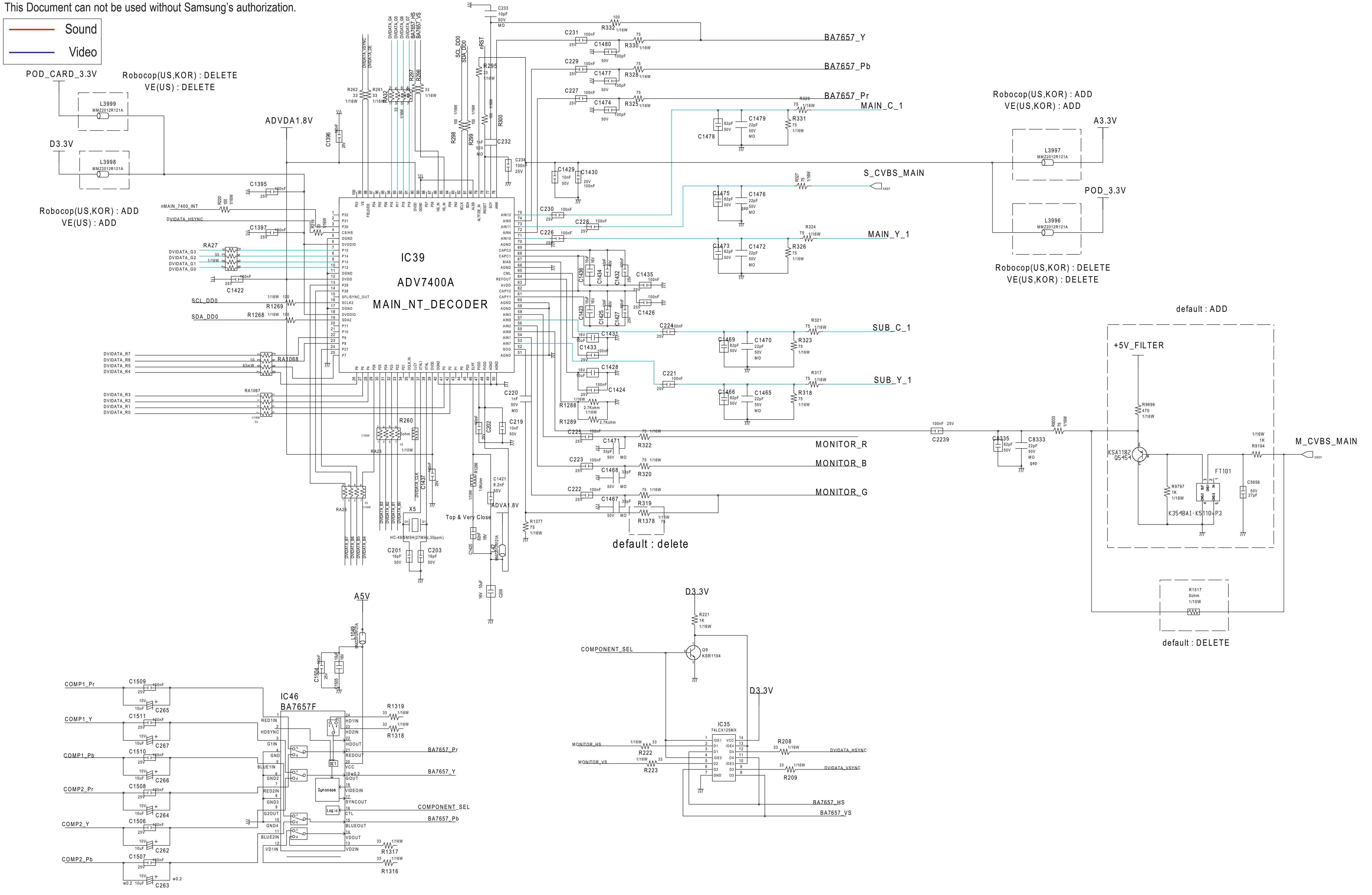

D3.3V
L1036
MMZ2012R121A
R195
1K
1/16W
Q7
KSR1104
SPDIF_SEL1
R194
1K
1/16W
SC
Q8
TR-DIGITAL
KSR1104
SPDIF_SEL2
C1302
100nF
25V
C1351
100nF
25V
IC29
MC74VHC244DTR2
IC33
MC74VHC244DTR2
1394S_DATA
1394S_LRCLK
1394S_SCLK
HDMIS_DATA
HDMIS_LRCLK
HDMIS_SCLK
EXT_AUDIO_DATA
EXT_AUDIO_LRCLK
EXT_AUDIO_SCLK
R243 100 1/16W
R241 100 1/16W
R239 100 1/16W
NT_I2S_DATA
NT_I2S_LRCLK
NT_I2S_SCLK
R8315
R8314
R8545
option (delete)
R244 100 1/16W
R242 100 1/16W
R240 100 1/16W
I2SIN_DATA
I2SIN_LRCLK
I2SIN_SCLK


MD3.3V
C1520
100nF
25V
IC1044
MC74VHC244DTR2
R1376
0ohm
1/10W
RxC_SERIAL_BUFFER_IN
R1379 33 1/16W
R1373 33 1/16W
DVOCLK1
R1380 33 1/16W
R1374 33 1/16W
RxC_SERIAL_BUFFER_OUT
HD_CLK


DVOHSYNC
HD_HSYNC
DVOVSYNC
HD_VSYNC
DVOCLK1
Delete_US_KOR_V1.0
HD_CLK
C1361
10pF
50V
delete
TP17
SUPLVAL
DVODE
HD_DE
RA4
RA8
RA7
DVODATA0 … DVODATA11
HD_Y4 … HD_Y7
HD_PR0 … HD_PR7
delete
C1213
10pF
50V
D3.3V
IC1021
RA1032
RA1033
RA1034
RA1
RA2
RA3
HD_PB0 … HD_PB7
HD_Y0 … HD_Y3
74LVT16374ADGG(R)
+3.3V_LVDS
R64
10K
1/16W
R64 DELETE
C32
100nF
25V
R99
1M
1/16W
DNI_PR(0:7)
DNI_Y(0:7)
DNI_PB(0:7)
DNI_HSYNC
DNI_VSYNC
IC3
DTC34LM85A
RA1000
63mW
10
TX2+
TX2-
TX1+
TX1-
RA1001
TX0+
TX0-
TX3+
TX3-
TXC-
TXC+
R1049
R1050
R1054 DELETE
R1054
10K
1/16W
R1053
1M
1/16W
DNI_EN
DNI_CLK
LVDS_EN
R1052
L5
MMZ2012R121A
C17
1nF
C18
100nF
C4446
1uF
10V
L10
MMZ2012R121A
C31
1nF
C30
100nF
C4445
1uF
10V
L6
MMZ2012R121A
C21
100nF
C22
10nF
C27
1nF
C4444
1uF
10V

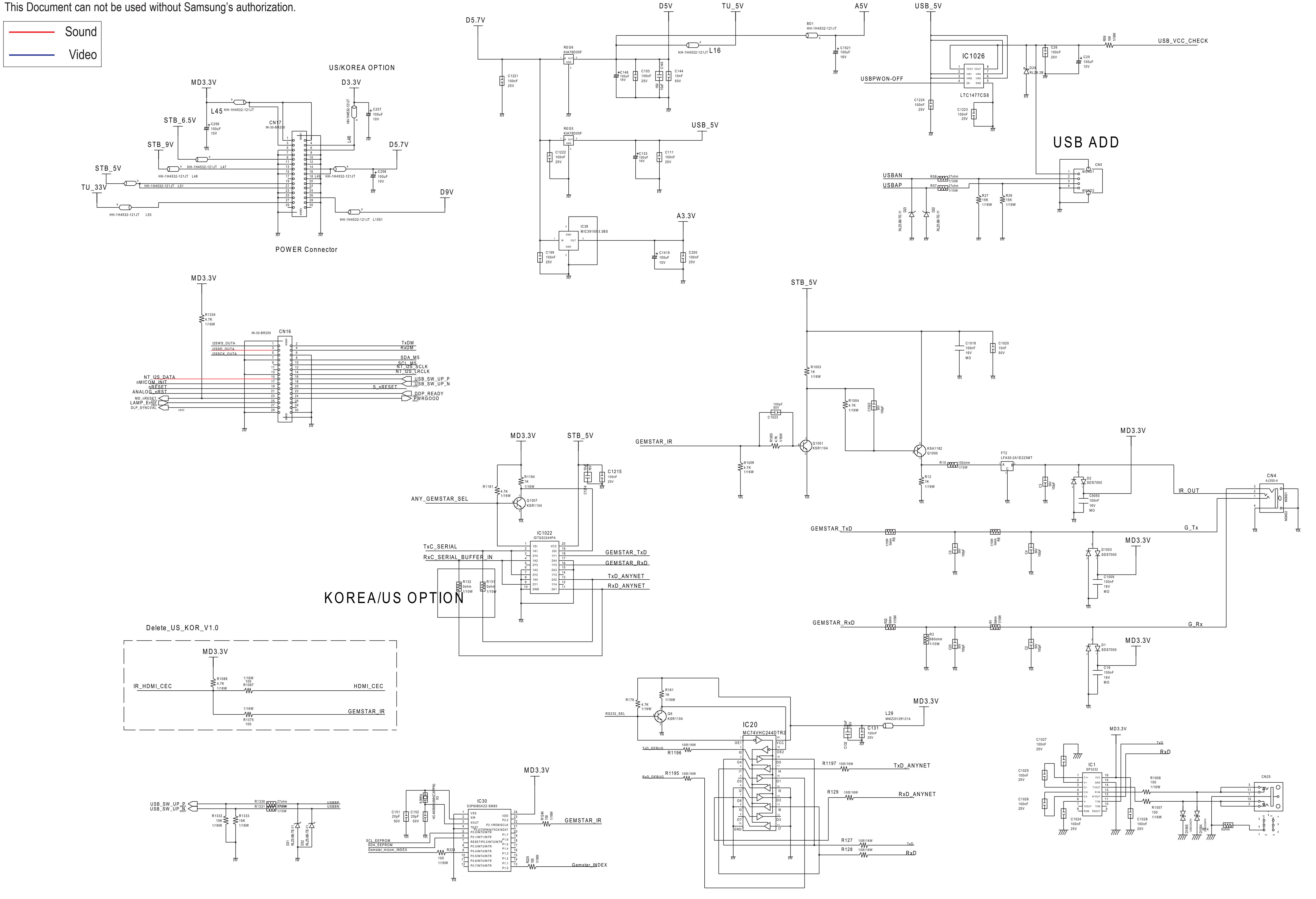
10-2-14 DTV Module-14

This Document can not be used without Samsung's authorization.


Sound
Video
POD_CARD_3.3V
Robocop(US,KOR) : DELETE
VE(US) : DELETE
L3999
MMZ2012R121A
D3.3V
L3998
MMZ2012R121A
Robocop(US,KOR) : ADD
VE(US) : ADD
ADVDA1.8V
nMAIN_7400_INT
DVIDATA_HSYNC
RA27
DVIDATA_G3
DVIDATA_G2
DVIDATA_G1
DVIDATA_G0
C1395
C1397
C1422
SCL_DD0
SDA_DD0
R1269
R1268
DVIDATA_R7
DVIDATA_R6
DVIDATA_R5
DVIDATA_R4
RA1068
DVIDATA_R3
DVIDATA_R2
DVIDATA_R1
DVIDATA_R0
RA1067
R260
RA25
RA23
IC39
ADV7400A
MAIN_NT_DECODER
C1396
R262
R261
R297
R296
SCL_DD0
SDA_DD0
nRST
R295
R298
R299
R300
C232
C233
C234
X5
HC-49/SM5H(27MHz,30ppm)
C201
C203
Top & Very Close
ADVA1.8V
C1437
C1421
C202
C219
C220
C205
C1420
L42
R1377
R1286
C231
R332
C1480
R330
C229
C1477
R328
C227
C1474
R325
BA7657_Y
BA7657_Pb
BA7657_Pr
MAIN_C_1
C1478
C1479
R329
R331
C1429
C1430
S_CVBS_MAIN
R327
C1475
C1476
C230
C228
C226
R324
MAIN_Y_1
C1473
C1472
R326
C1436
C1434
C1432
C1435
C1423
C1425
C1427
C1426
C224
C1431
C1433
R321
SUB_C_1
C1469
C1470
R323
C1428
C1424
C221
R317
SUB_Y_1
C1466
C1465
R318
R1288
R1289
C225
C1471
R322
MONITOR_R
C223
C1468
R320
MONITOR_B
C222
C1467
R319
R1378
MONITOR_G
default : delete
Robocop(US,KOR) : ADD
VE(US,KOR) : ADD
A3.3V
L3997
MMZ2012R121A
POD_3.3V
L3996
MMZ2012R121A
Robocop(US,KOR) : DELETE
VE(US,KOR) : DELETE
default : ADD
+5V_FILTER
R9696
C2239
C8335
C8333
R8333
KSA1182
Q5454
R9797
FT101
K354BAI-K5110-P3
C5656
R9194
M_CVBS_MAIN
R1517
0ohm
1/10W
default : DELETE
A5V
L1049
C1504
C1505
COMP1_Pr
C1509
C265
COMP1_Y
C1511
C267
COMP1_Pb
C1510
C266
COMP2_Pr
C1508
C264
COMP2_Y
C1506
C262
COMP2_Pb
C1507
C263
IC46
BA7657F
RED1IN
HDSYNC
G1IN
GND
BLUE1IN
GND2
RED2IN
GND3
G2OUT
GND4
BLUE2IN
VD1IN
HD1IN
HD2IN
HDOUT
REDOUT
VCC
GOUT
VIDEOIN
SYNCOUT
CTL
BLUEOUT
VDOUT
VD2IN
Synsease
Logic
R1319
R1318
BA7657_Pr
BA7657_Y
COMPONENT_SEL
BA7657_Pb
R1317
R1316
D3.3V
R221
COMPONENT_SEL
Q9
KSR1104
D3.3V
IC35
74LCX125MX
MONITOR_HS
R222
MONITOR_VS
R223
R208
DVIDATA_HSYNC
R209
DVIDATA_VSYNC
BA7657_HS
BA7657_VS

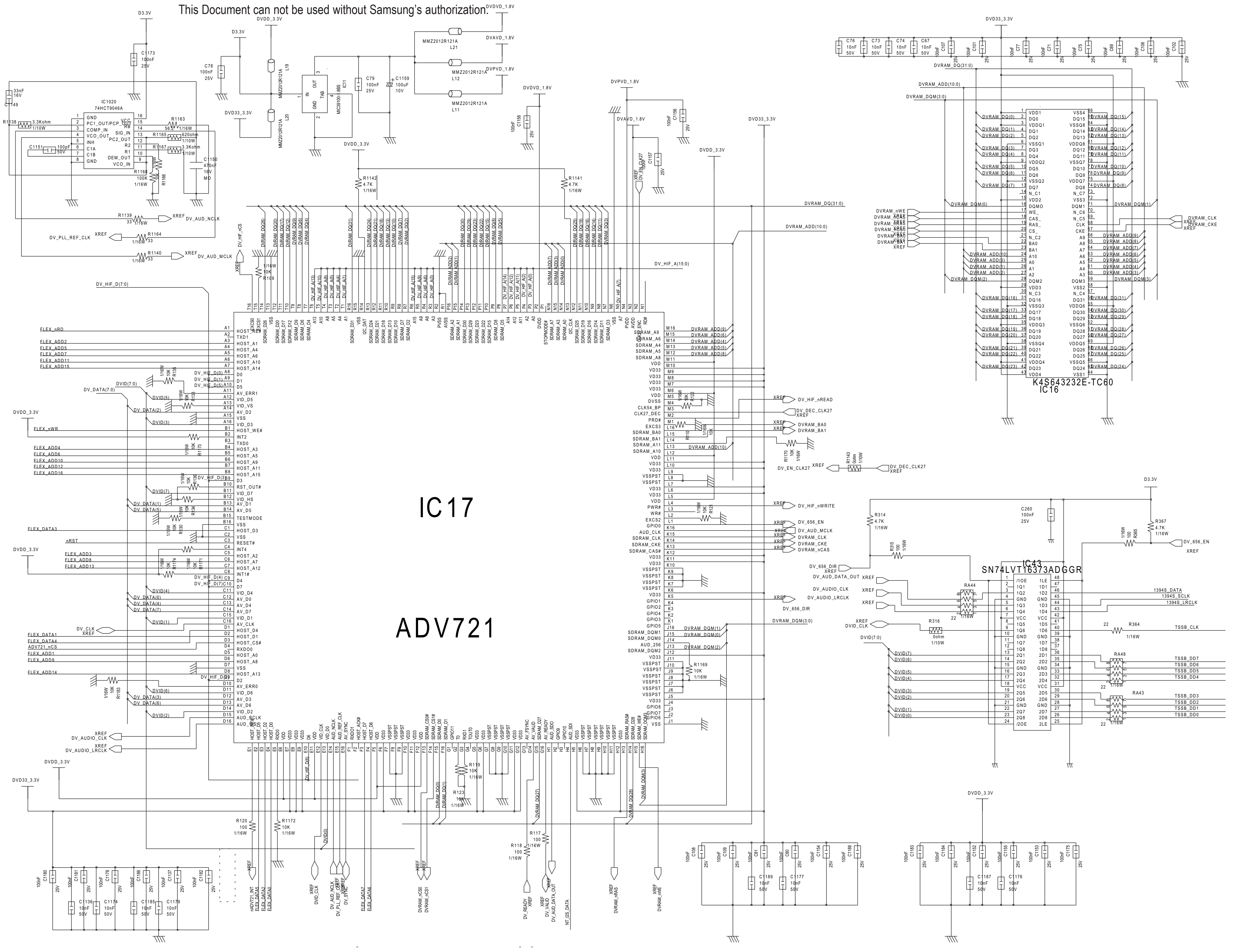
10-2-15 DTV Module-15

This Document can not be used without Samsung's authorization.


Sound
Video
US/KOREA OPTION
MD3.3V
D3.3V
STB_6.5V
STB_9V
STB_5V
TU_33V
D5.7V
D9V
L45
L46
CN17
POWER Connector
D5V
TU_5V
A5V
USB_5V
REG6
KIA78D05F
L16
BD1
REG5
IC38
MIC39100-3.3BS
A3.3V
IC1026
LTC1477CS8
USB_VCC_CHECK
USBPWON-OFF
USB ADD
USBAN
USBAP
CN5
CN16
TxDM
RxDM
SDA_M5
SCL_M5
NT_I2S_SCLK
NT_I2S_LRCLK
USB_SW_UP_P
USB_SW_UP_N
S_nRESET
DDP_READY
PWRGOOD
NT_I2S_DATA
nMICOM_INIT
nRESET
ANALOG_nRST
MD_nRESET
LAMP_Error
DLP_SYNCVAL
STB_5V
GEMSTAR_IR
Q1001
KSR1104
KSA1182
Q1000
FT2
LFA30-2A1E223MT
IR_OUT
CN4
ANY_GEMSTAR_SEL
Q1007
IC1022
IDTQS3244PA
TxC_SERIAL
RxC_SERIAL_BUFFER_IN
GEMSTAR_TxD
GEMSTAR_RxD
TxD_ANYNET
RxD_ANYNET
KOREA/US OPTION
G_Tx
G_Rx
Delete_US_KOR_V1.0
IR_HDMI_CEC
HDMI_CEC
GEMSTAR_IR
RS232_SEL
Q6
IC20
MC74VHC244DTR2
L29
TxD_DEBUG
RxD_DEBUG
R1196
R1195
R1197
R129
R127
R128
TxD
RxD
IC1
SP3232
CN25
IC30
S3F80B5XZZ-SW85
USB_SW_UP_P
USB_SW_UP_N
SCL_EEPROM
SDA_EEPROM
Gemstar_micom_INDEX
Gemstar_INDEX

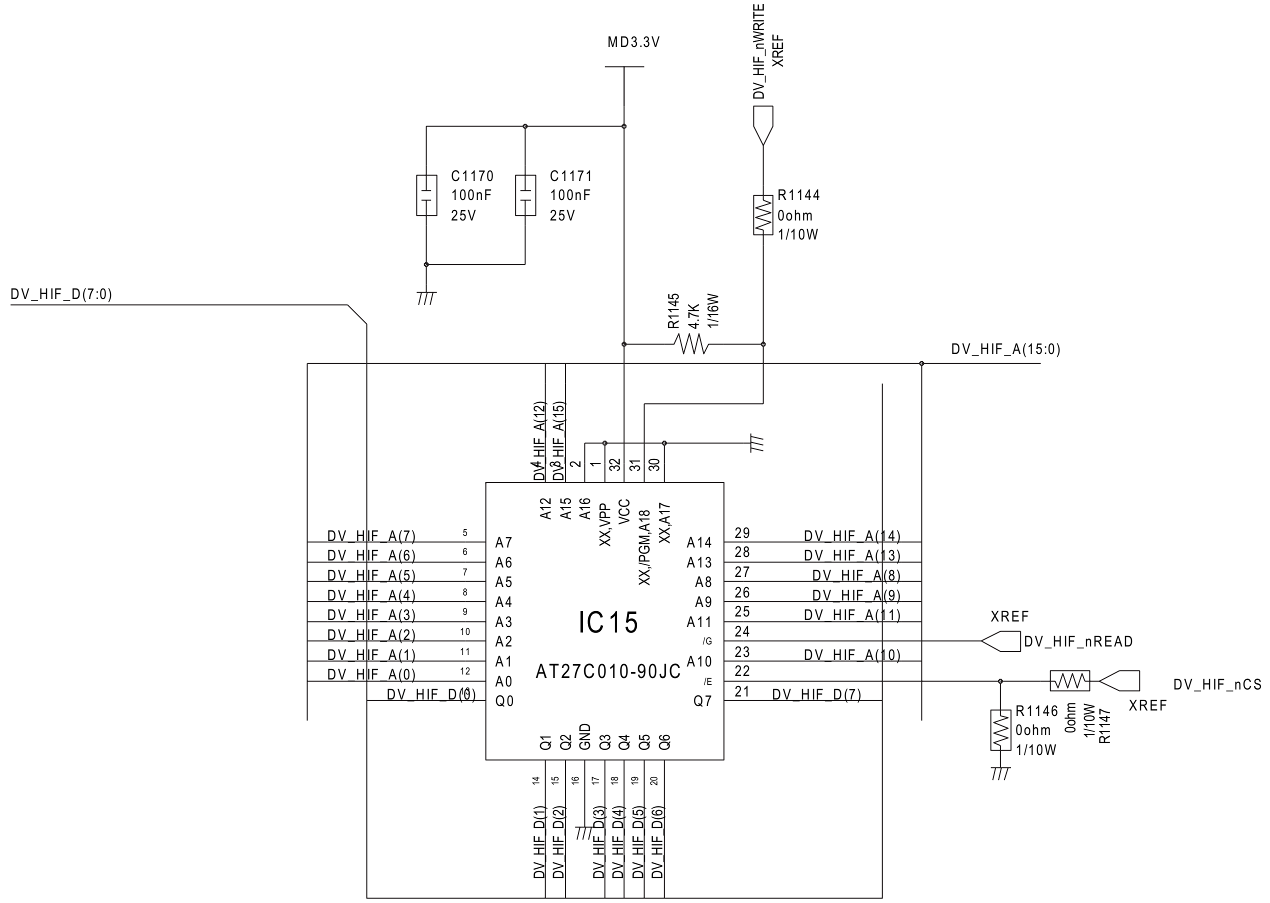
10-2-16 DTV Module-16

This Document can not be used without Samsung's authorization.


IC17
ADV721
K4S643232E-TC60
IC16
IC43
SN74LVT16373ADGGR
IC1020
74HCT9046A
MIC39100-1.8BS
IC11
MMZ2012R121A
L21
L12
L11
L19
L20
D3.3V
DVDD_3.3V
DVDD_1.8V
DVPVD_1.8V
DVAVD_1.8V
DVD33_3.3V
DVRAM_DQ(31:0)
DVRAM_ADD(10:0)
DVRAM_DQM(3:0)
DV_HIF_A(15:0)
DV_HIF_D(7:0)
DV_DATA(7:0)
DVID(7:0)
DV_AUD_NCLK
DV_PLL_REF_CLK
DV_AUD_MCLK
DV_HIF_nREAD
DV_DEC_CLK27
DVRAM_BA0
DVRAM_BA1
DV_EN_CLK27
DV_HIF_nWRITE
DV_656_EN
DV_AUD_MCLK
DVRAM_CLK
DVRAM_CKE
DVRAM_nCAS
DV_656_DIR
DV_AUD_DATA_OUT
DV_AUDIO_CLK
DV_AUDIO_LRCLK
DVID_CLK
1394S_DATA
1394S_SCLK
1394S_LRCLK
TSSB_CLK
TSSB_DD7
TSSB_DD6
TSSB_DD5
TSSB_DD4
TSSB_DD3
TSSB_DD2
TSSB_DD1
TSSB_DD0
DV_CLK
DV_AUDIO_CLK
DV_AUDIO_LRCLK
FLEX_nRD
FLEX_nWR
FLEX_DATA3
nRST
XREF

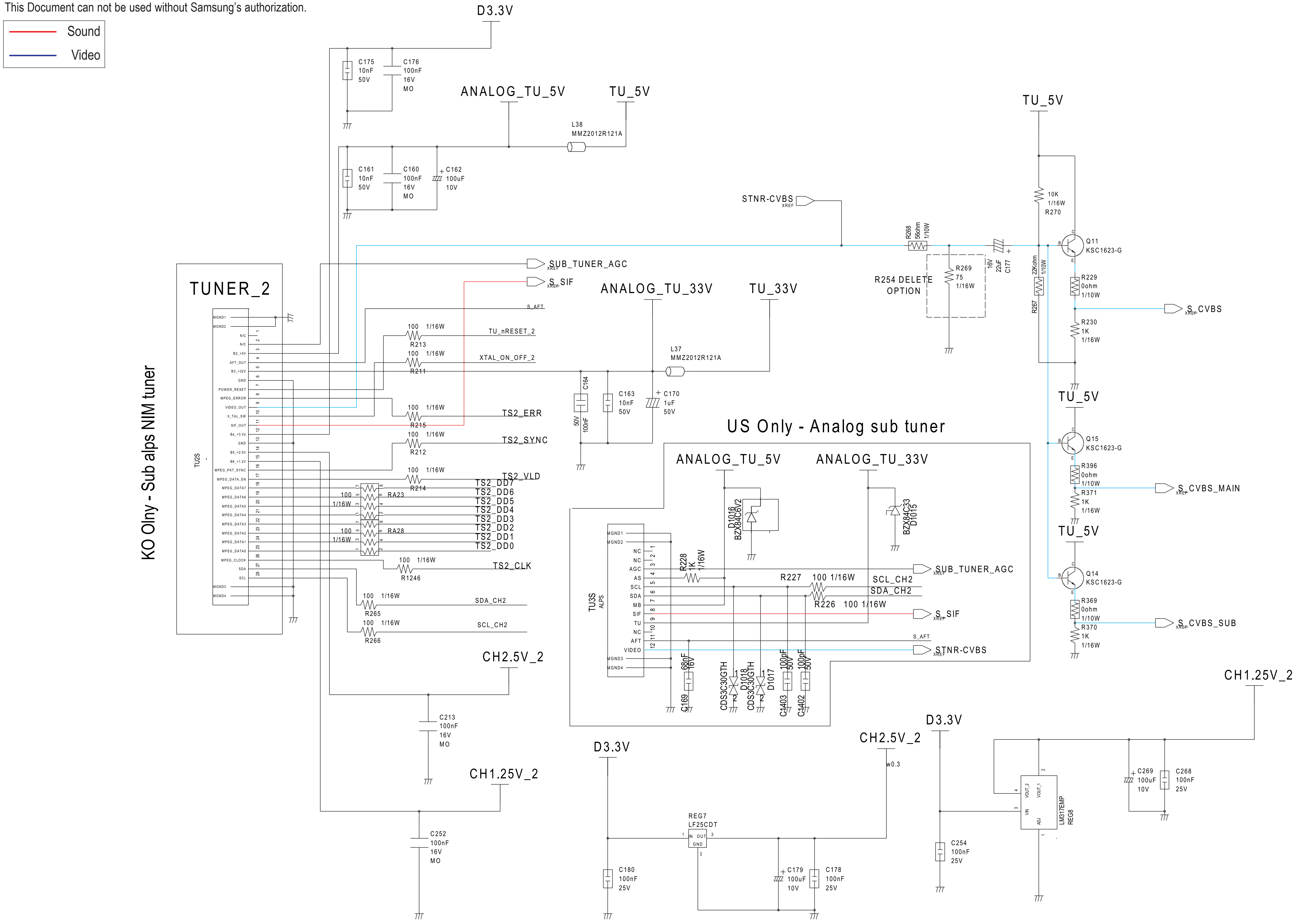
10-2-17 DTV Module-17

This Document can not be used without Samsung's authorization.


MD3.3V
DV_HIF_nWRITE
XREF
C1170
100nF
25V
C1171
100nF
25V
R1144
0ohm
1/10W
R1145
4.7K
1/16W
DV_HIF_D(7:0)
DV_HIF_A(15:0)
DV_HIF_A(12)
DV_HIF_A(15)
IC15
AT27C010-90JC
A12
A15
A16
XX,VPP
VCC
XX,/PGM,A18
XX,A17
A7
A6
A5
A4
A3
A2
A1
A0
Q0
A14
A13
A8
A9
A11
/G
A10
/E
Q7
Q1
Q2
GND
Q3
Q4
Q5
Q6
DV_HIF_A(7)
DV_HIF_A(6)
DV_HIF_A(5)
DV_HIF_A(4)
DV_HIF_A(3)
DV_HIF_A(2)
DV_HIF_A(1)
DV_HIF_A(0)
DV_HIF_D(0)
DV_HIF_A(14)
DV_HIF_A(13)
DV_HIF_A(8)
DV_HIF_A(9)
DV_HIF_A(11)
DV_HIF_A(10)
DV_HIF_D(7)
XREF
DV_HIF_nREAD
DV_HIF_nCS
XREF
R1146
0ohm
1/10W
0ohm
1/10W
R1147
DV_HIF_D(1)
DV_HIF_D(2)
DV_HIF_D(3)
DV_HIF_D(4)
DV_HIF_D(5)
DV_HIF_D(6)
4
3
2
1
32
31
30
5
6
7
8
9
10
11
12
13
29
28
27
26
25
24
23
22
21
14
15
16
17
18
19
20

10-2-18 DTV Module-18

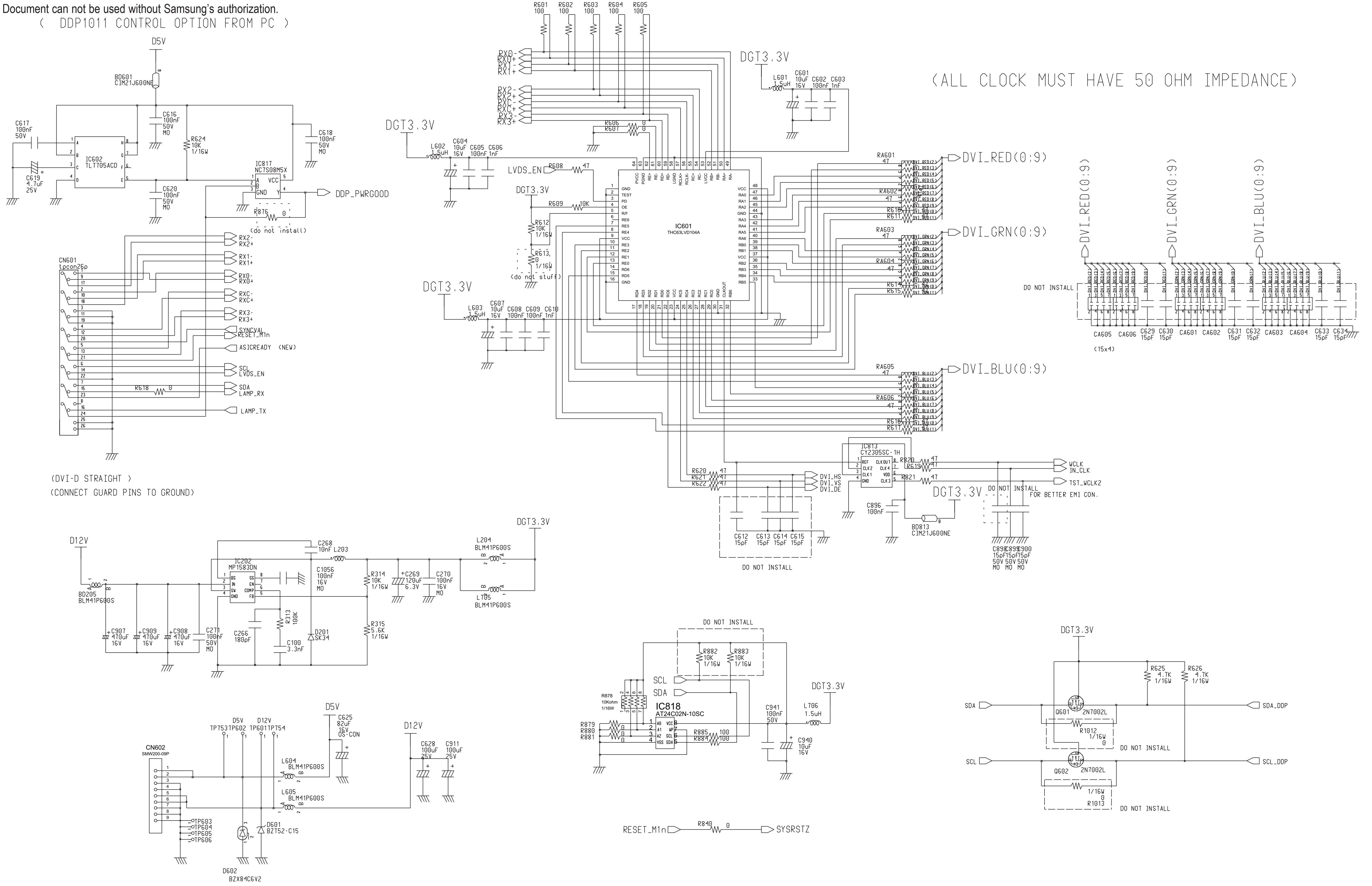
This Document can not be used without Samsung's authorization.


Sound
Video
D3.3V
C175 10nF 50V
C176 100nF 16V MO
ANALOG_TU_5V
TU_5V
L38 MMZ2012R121A
C161 10nF 50V
C160 100nF 16V MO
C162 100uF 10V
STNR-CVBS
R268 56ohm 1/10W
16V 22uF C177
R269 75 1/16W
R254 DELETE OPTION
10K 1/16W R270
Q11 KSC1623-G
R229 0ohm 1/10W
R267 22Kohm 1/10W
S_CVBS
R230 1K 1/16W
SUB_TUNER_AGC
S_SIF
TUNER_2
ANALOG_TU_33V
TU_33V
S_AFT
TU_nRESET_2
XTAL_ON_OFF_2
R213
R211
100 1/16W
L37 MMZ2012R121A
C164 50V 100nF
C163 10nF 50V
C170 1uF 50V
KO Olny - Sub alps NIM tuner
TU2S
MGND1
MGND2
N/C
B2_+5V
AFT_OUT
B3_+32V
GND
POWER_RESET
MPEG_ERROR
VIDEO_OUT
X_TAL_SW
SIF_OUT
B4_+3.3V
B5_+2.5V
B6_+1.2V
MPEG_PKT_SYNC
MPEG_DATA_EN
MPEG_DATA7
MPEG_DATA6
MPEG_DATA5
MPEG_DATA4
MPEG_DATA3
MPEG_DATA2
MPEG_DATA1
MPEG_DATA0
MPEG_CLOCK
SDA
SCL
MGND3
MGND4
TS2_ERR
R215
TS2_SYNC
R212
TS2_VLD
R214
RA23
RA28
100 1/16W
TS2_DD7
TS2_DD6
TS2_DD5
TS2_DD4
TS2_DD3
TS2_DD2
TS2_DD1
TS2_DD0
TS2_CLK
R1246
SDA_CH2
R265
SCL_CH2
R266
US Only - Analog sub tuner
ANALOG_TU_5V
ANALOG_TU_33V
D1016 BZX84C6V2
BZX84C33 D1015
TU3S ALPS
NC
AGC
AS
SCL
SDA
MB
SIF
TU
AFT
VIDEO
R228 1K 1/16W
R227 100 1/16W
R226 100 1/16W
SCL_CH2
SDA_CH2
SUB_TUNER_AGC
S_SIF
S_AFT
STNR-CVBS
C169 68pF 16V
CDS3C30GTH D1018
CDS3C30GTH D1017
C1403 100pF 50V
C1402 100pF 50V
TU_5V
Q15 KSC1623-G
R396 0ohm 1/10W
R371 1K 1/16W
S_CVBS_MAIN
Q14 KSC1623-G
R369 0ohm 1/10W
R370 1K 1/16W
S_CVBS_SUB
CH2.5V_2
C213 100nF 16V MO
CH1.25V_2
C252 100nF 16V MO
D3.3V
REG7 LF25CDT
IN OUT GND
C180 100nF 25V
C179 100uF 10V
C178 100nF 25V
CH2.5V_2
w0.3
D3.3V
C254 100nF 25V
CH1.25V_2
VOUT_2 VOUT_1 VIN ADJ
LM317EMP REG8
C269 100uF 10V
C268 100nF 25V
XREF

10-3 DMD Board

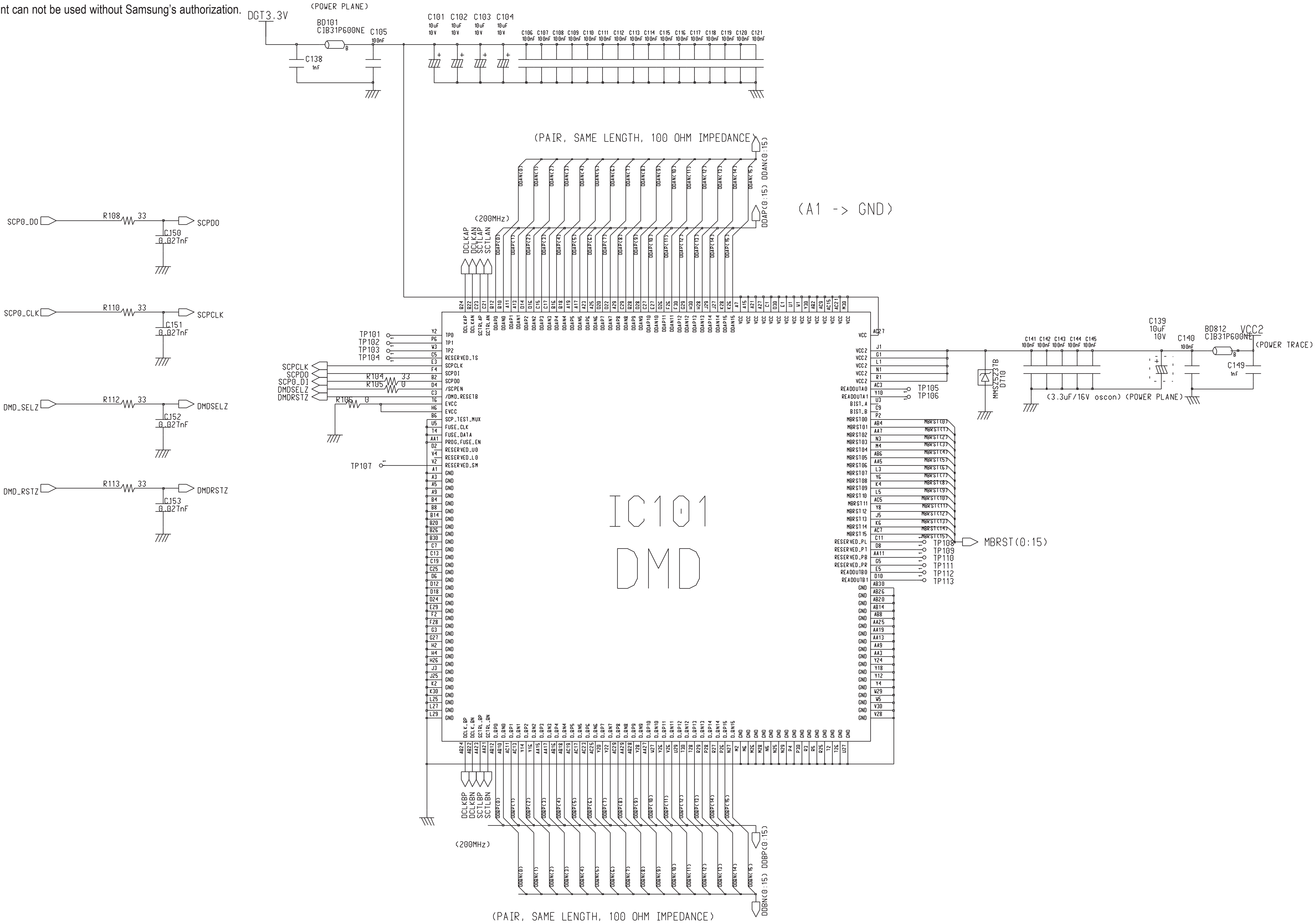
10-3-1 DMD Board-1

This Document can not be used without Samsung's authorization.


(DDP1011 CONTROL OPTION FROM PC)
D5V
BD601 CIM21J600NE
C617 100nF 50V
C619 4.7uF 25V
IC602 TL7705ACD
C616 100nF 50V MO
R624 10K 1/16W
C620 100nF 50V MO
IC817 NC7S08M5X
C618 100nF 50V MO
DDP_PWRGOOD
R876 0 (do not install)
CN601 tpcon26p
RX2- RX2+ RX1- RX1+ RX0- RX0+ RXC- RXC+ RX3- RX3+
SYNCVAL RESET_M1n
ASICREADY (NEW)
SCL LVDS_EN
R618 0
SDA LAMP_RX
LAMP_TX
(DVI-D STRAIGHT)
(CONNECT GUARD PINS TO GROUND)
R601 100 R602 100 R603 100 R604 100 R605 100
R606 0 R607 0
DGT3.3V
L602 1.5uH
C604 10uF 16V C605 100nF C606 1nF
LVDS_EN R608 47
R609 10K
R612 10K 1/16W
R613 0 1/16W (do not stuff)
L603 1.5uH
C607 10uF 16V C608 100nF C609 100nF C610 1nF
IC601 THC63LVD104A
L601 1.5uH
C601 10uF 16V C602 100nF C603 1nF
(ALL CLOCK MUST HAVE 50 OHM IMPEDANCE)
RA601 47 RA602 47 R610 R611
DVI_RED(0:9)
RA603 47 RA604 47 R614 R615
DVI_GRN(0:9)
RA605 47 RA606 47 R616 R617
DVI_BLU(0:9)
DO NOT INSTALL
CA605 CA606 C629 15pF C630 15pF CA601 CA602 C631 15pF C632 15pF CA603 CA604 C633 15pF C634 15pF
(15x4)
IC813 CY2305SC-1H
R820 47 R819 47 R821 47
WCLK IN_CLK TST_WCLK2
R620 47 R621 47 R622 47
DVI_HS DVI_VS DVI_DE
C612 15pF C613 15pF C614 15pF C615 15pF
DO NOT INSTALL
C896 100nF
BD813 CIM21J600NE
DO NOT INSTALL FOR BETTER EMI CON.
C898 C899 C900 15pF 15pF 15pF 50V 50V 50V MO MO MO
D12V
BD205 BLM41P600S
IC202 MP1583DN
C268 10nF L203
C1056 100nF 16V MO
R314 10K 1/16W
C269 120uF 6.3V
C270 100nF 16V MO
L204 BLM41P600S
L105 BLM41P600S
C907 470uF 16V C909 470uF 16V C908 470uF 16V C271 100nF 50V MO
C266 180pF
R313 100K
C100 3.3nF
D201 SK34
R315 5.6K 1/16W
CN602 SMW200-09P
D5V D12V TP753 TP602 TP601 TP754
C625 82uF 16V OS-CON
L604 BLM41P600S
L605 BLM41P600S
C628 100uF 25V C911 100uF 25V
TP603 TP604 TP605 TP606
D601 BZT52-C15
D602 BZX84C6V2
DO NOT INSTALL
R882 10K 1/16W R883 10K 1/16W
SCL SDA
R878 10Kohm 1/16W
IC818 AT24C02N-10SC
R879 0 R880 0 R881 0
R885 100 R884 100
C941 100nF 50V
L706 1.5uH
C940 10uF 16V
RESET_M1n R840 0 SYSRSTZ
R625 4.7K 1/16W R626 4.7K 1/16W
SDA SDA_DDP
Q601 2N7002L
R1012 1/16W 0
DO NOT INSTALL
SCL SCL_DDP
Q602 2N7002L
R1013 1/16W 0
DO NOT INSTALL

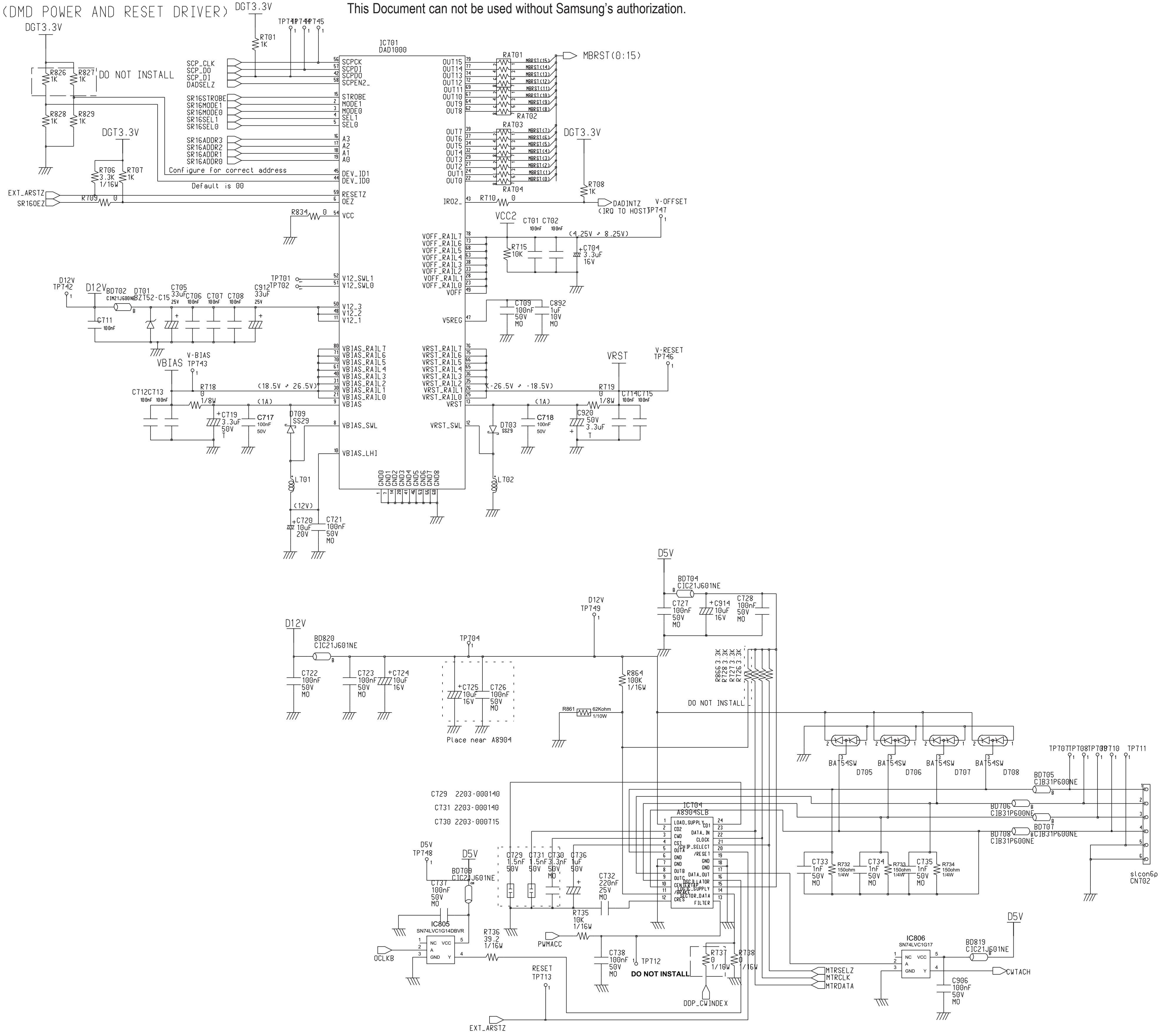
10-3-2 DMD Board-2

This Document can not be used without Samsung's authorization.


DGT3.3V
(POWER PLANE)
BD101
CIB31P600NE
C105
100nF
C138
1nF
C101 C102 C103 C104
10uF
10V
C106 C107 C108 C109 C110 C111 C112 C113 C114 C115 C116 C117 C118 C119 C120 C121
100nF
(PAIR, SAME LENGTH, 100 OHM IMPEDANCE)
DDAN(0:15)
DDAP(0:15)
(A1 -> GND)
(200MHz)
DCLKAP
DCLKAN
SCTLAP
SCTLAN
SCP0_DO
R108 33
C150 0.027nF
SCPDO
SCP0_CLK
R110 33
C151 0.027nF
SCPCLK
DMD_SELZ
R112 33
C152 0.027nF
DMDSELZ
DMD_RSTZ
R113 33
C153 0.027nF
DMDRSTZ
TP101
TP102
TP103
TP104
SCPCLK
SCPDO
SCP0_DI
DMDSELZ
DMDRSTZ
R104 33
R105 0
R106 0
TP107
IC101
DMD
VCC
AC27
VCC2
J1
G1
L1
N1
R1
READOUTA0
READOUTA1
TP105
TP106
BIST_A
BIST_B
MBRST00
MBRST15
MBRST(0:15)
TP108
TP109
TP110
TP111
TP112
TP113
RESERVED_PL
RESERVED_PT
RESERVED_PB
RESERVED_PR
READOUTB0
READOUTB1
GND
MMSZ5237B
D710
C141 C142 C143 C144 C145
100nF
(3.3uF/16V oscon) (POWER PLANE)
C139
10uF
10V
C140
100nF
BD812
CIB31P600NE
VCC2
(POWER TRACE)
C149
1nF
DCLKBP
DCLKBN
SCTLBP
SCTLBN
(200MHz)
DDBP(0:15)
DDBN(0:15)
(PAIR, SAME LENGTH, 100 OHM IMPEDANCE)

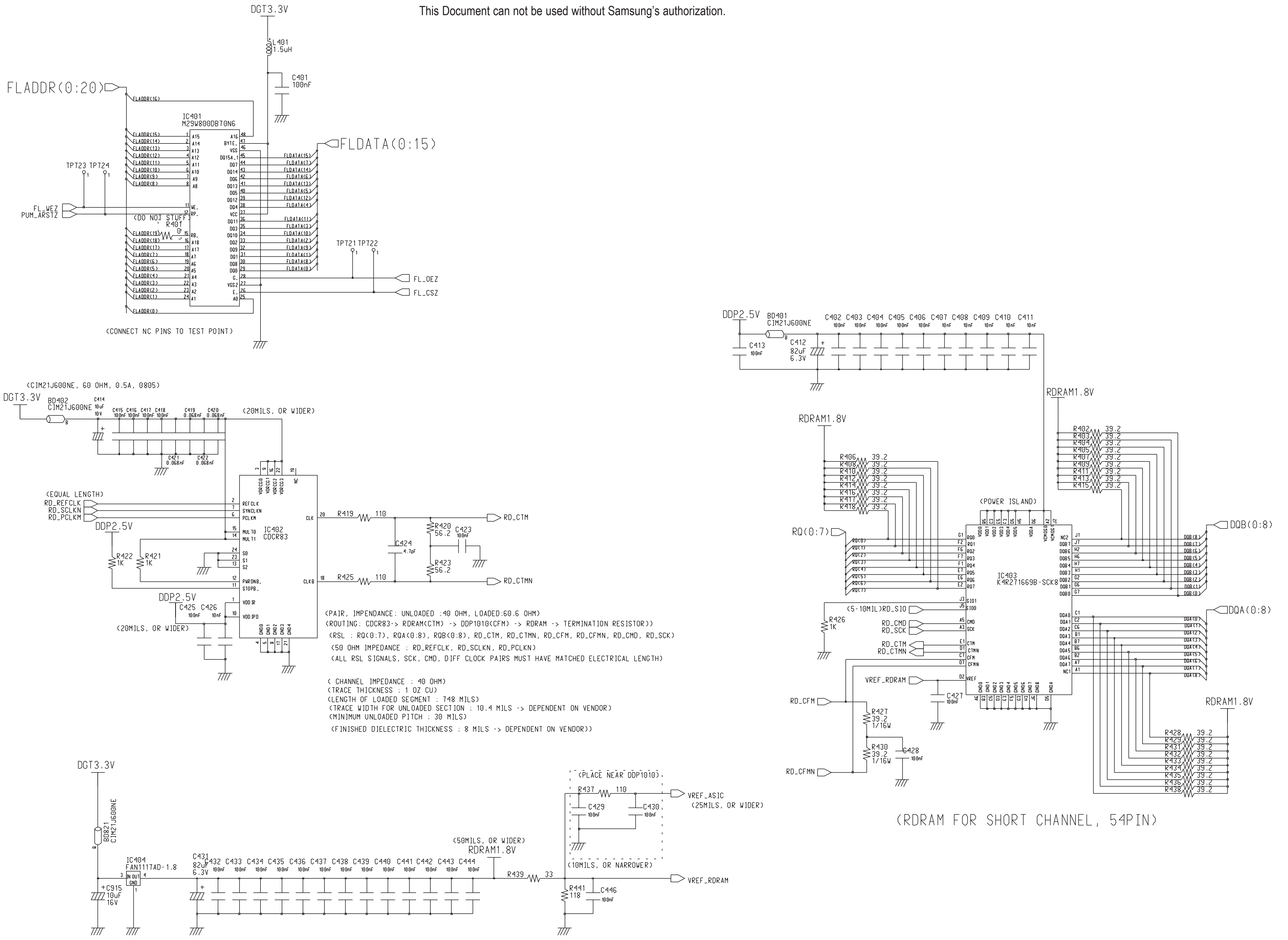
10-3-3 DMD Board-3

This Document can not be used without Samsung's authorization.


(DMD POWER AND RESET DRIVER)
DGT3.3V
R826 1K
R827 1K
DO NOT INSTALL
R828 1K
R829 1K
R706 3.3K 1/16W
R707 1K
EXT_ARSTZ
SR16OEZ
R709 0
R701 1K
TP741 TP744 TP745
IC701 DAD1000
SCP_CLK
SCP_DO
SCP_DI
DADSELZ
SR16STROBE
SR16MODE1
SR16MODE0
SR16SEL1
SR16SEL0
SR16ADDR3
SR16ADDR2
SR16ADDR1
SR16ADDR0
Configure for correct address
Default is 00
SCPCK
SCPDI
SCPDO
SCPEN2_
STROBE
MODE1
MODE0
SEL1
SEL0
A3
A2
A1
A0
DEV_ID1
DEV_ID0
RESETZ
OEZ
VCC
R834 0
OUT15
OUT14
OUT13
OUT12
OUT11
OUT10
OUT9
OUT8
OUT7
OUT6
OUT5
OUT4
OUT3
OUT2
OUT1
OUT0
RA701
RA702
RA703
RA704
MBRST(0:15)
MBRST(15) … MBRST(0)
IRQ2_
R710 0
R708 1K
DADINTZ (IRQ TO HOST)
V-OFFSET TP747
VCC2
C701 C702 100nF 100nF
(4.25V ~ 8.25V)
R715 10K
C704 3.3uF 16V
VOFF_RAIL7
VOFF_RAIL6
VOFF_RAIL5
VOFF_RAIL4
VOFF_RAIL3
VOFF_RAIL2
VOFF_RAIL1
VOFF_RAIL0
VOFF
V5REG
C709 100nF 50V MO
C892 1uF 10V MO
D12V TP742
D12V
BD702 CIM21J600NE
D701 BZT52-C15
C705 33uF 25V
C706 100nF
C707 100nF
C708 100nF
C912 33uF 25V
C711 100nF
TP701
TP702
V12_SWL1
V12_SWL0
V12_3
V12_2
V12_1
VBIAS
V-BIAS TP743
C712 C713 100nF 100nF
R718 0 1/8W
(18.5V ~ 26.5V)
(1A)
C719 3.3uF 50V T
C717 100nF 50V
D709 SS29
VBIAS_RAIL7
VBIAS_RAIL6
VBIAS_RAIL5
VBIAS_RAIL4
VBIAS_RAIL3
VBIAS_RAIL2
VBIAS_RAIL1
VBIAS_RAIL0
VBIAS
VBIAS_SWL
VBIAS_LHI
L701
(12V)
C720 10uF 20V
C721 100nF 50V MO
GND0 GND1 GND2 GND3 GND4 GND5 GND6 GND7 GND8
VRST_RAIL7
VRST_RAIL6
VRST_RAIL5
VRST_RAIL4
VRST_RAIL3
VRST_RAIL2
VRST_RAIL1
VRST_RAIL0
VRST
VRST_SWL
(-26.5V ~ -18.5V)
D703 SS29
C718 100nF 50V
L702
VRST
V-RESET TP746
R719 0 1/8W
C714 C715 100nF 100nF
C920 50V 3.3uF T
D5V
BD704 CIC21J601NE
C727 100nF 50V MO
C914 10uF 16V
C728 100nF 50V MO
D12V TP749
D12V
BD820 CIC21J601NE
TP704
C722 100nF 50V MO
C723 100nF 50V MO
C724 10uF 16V
C725 10uF 16V
C726 100nF 50V MO
Place near A8904
R864 100K 1/16W
R861 62Kohm 1/10W
R866 3.3K
R728 3.3K
R727 3.3K
R726 3.3K
DO NOT INSTALL
BAT54SW
BAT54SW
BAT54SW
BAT54SW
D705
D706
D707
D708
TP707 TP708 TP709 TP710 TP711
BD705 CIB31P600NE
BD706 CIB31P600NE
BD707 CIB31P600NE
BD708 CIB31P600NE
slcon6p CN702
C729 2203-000140
C731 2203-000140
C730 2203-000715
IC704 A8904SLB
LOAD_SUPPLY
CD1
CD2
CWD
CS1
OUTA
GND
GND
OUTB
OUTC
CENTERTAP
/BRAKE
CRES
DATA_IN
CLOCK
/CHIP_SELECT
/RESET
GND
GND
DATA_OUT
OSCILLATOR
LOGIC_SUPPLY
SECTOR_DATA
FILTER
D5V TP748
D5V
BD709 CIC21J601NE
C737 100nF 50V MO
C729 1.5nF 50V
C731 1.5nF 50V
C730 3.3nF 50V MO
C736 1uF 50V
C732 220nF 25V MO
IC805 SN74LVC1G14DBVR
NC VCC A GND Y
OCLKB
R736 39.2 1/16W
R735 10K 1/16W
PWMACC
C738 100nF 50V MO
TP712
DO NOT INSTALL
R737 0 1/16W
R738 0 1/16W
DDP_CWINDEX
RESET TP713
EXT_ARSTZ
C733 1nF 50V MO
R732 150ohm 1/4W
C734 1nF 50V MO
R733 150ohm 1/4W
C735 1nF 50V MO
R734 150ohm 1/4W
MTRSELZ
MTRCLK
MTRDATA
IC806 SN74LVC1G17
NC VCC A GND Y
BD819 CIC21J601NE
D5V
CWTACH
C906 100nF 50V MO

10-3-4 DMD Board-4

This Document can not be used without Samsung's authorization.


DGT3.3V
L401 1.5uH
C401 100nF
FLADDR(0:20)
FLDATA(0:15)
IC401 M29W800DB70N6
TPT23 TPT24
FL_WEZ
PUM_ARSTZ
(DO NOT STUFF) R401
TPT21 TPT22
FL_OEZ
FL_CSZ
(CONNECT NC PINS TO TEST POINT)
(CIM21J600NE, 60 OHM, 0.5A, 0805)
BD402 CIM21J600NE
C414 10uF 10V
C415 C416 C417 C418 100nF
C419 C420 0.068nF
C421 C422 0.068nF
(20MILS, OR WIDER)
(EQUAL LENGTH)
RD_REFCLK
RD_SCLKN
RD_PCLKM
DDP2.5V
R422 1K
R421 1K
IC402 CDCR83
R419 110
R425 110
R420 56.2
R423 56.2
C423 100nF
C424 4.7nF
RD_CTM
RD_CTMN
C425 C426
DDP2.5V
BD401 CIM21J600NE
C402 C403 C404 C405 C406 C407 C408 C409 C410 C411
C413 100nF
C412 82uF 6.3V
RDRAM1.8V
R402 R403 R404 R405 R407 R409 R411 R413 R415 39.2
R406 R408 R410 R412 R414 R416 R417 R418 39.2
(POWER ISLAND)
RQ(0:7)
IC403 K4R271669B-SCK8
DQB(0:8)
DQA(0:8)
(5-10MIL)RD_SIO
R426 1K
RD_CMD
RD_SCK
VREF_RDRAM
C427 100nF
RD_CFM
RD_CFMN
R427 39.2 1/16W
R430 39.2 1/16W
C428 100nF
R428 R429 R431 R432 R433 R434 R435 R436 R438 39.2
BD921 CIM21J600NE
IC404 FAN1117AD-1.8
C915 10uF 16V
C431 82uF 6.3V
C432 C433 C434 C435 C436 C437 C438 C439 C440 C441 C442 C443 C444 100nF
(50MILS, OR WIDER)
R439 33
(PLACE NEAR DDP1010)
R437 110
C429 100nF
C430 100nF
VREF_ASIC
(25MILS, OR WIDER)
(10MILS, OR NARROWER)
R441 118
C446 100nF

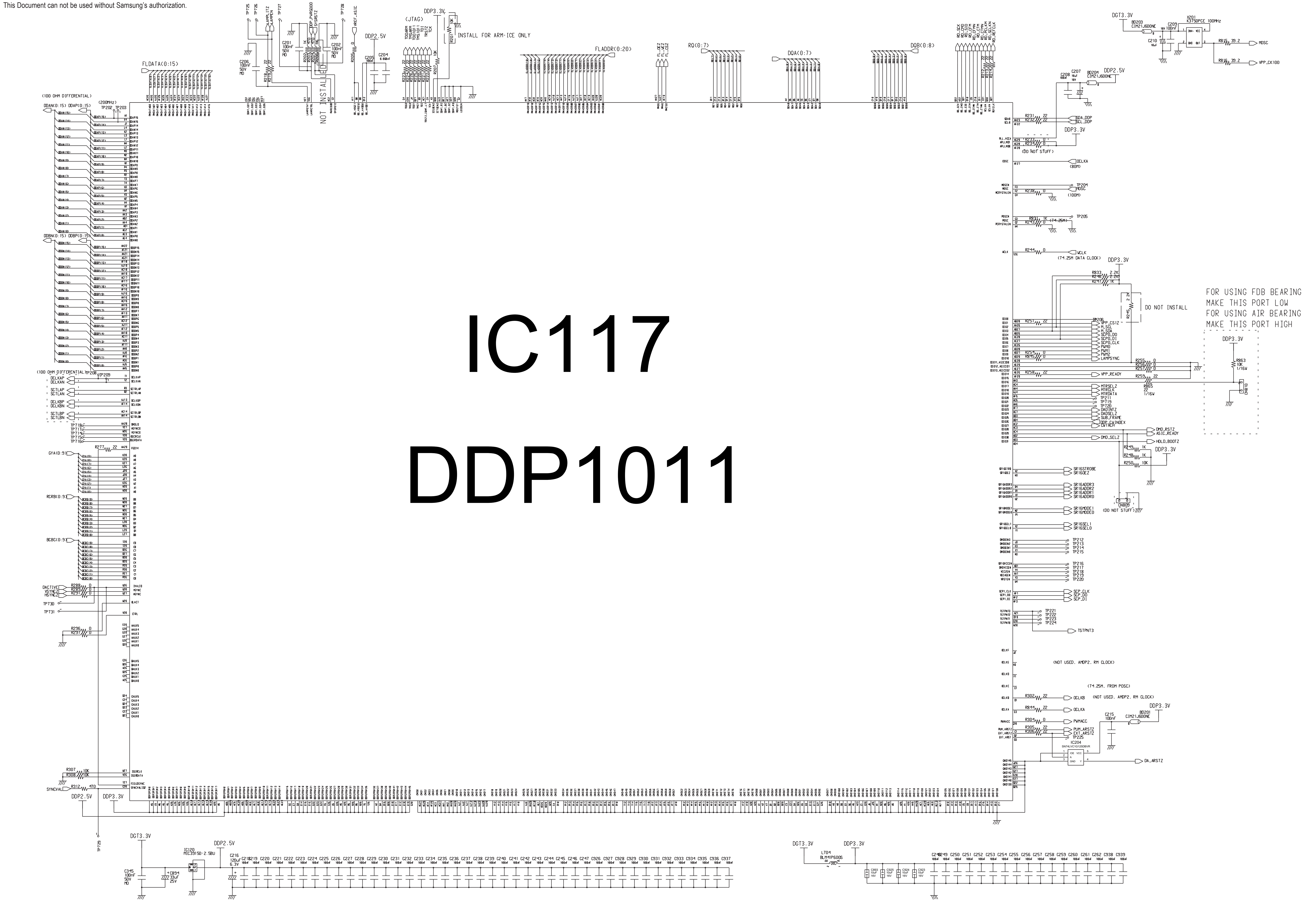
(PAIR, IMPENDANCE: UNLOADED :40 OHM, LOADED:60.6 OHM)
(ROUTING: CDCR83-> RDRAM(CTM) -> DDP1010(CFM) -> RDRAM -> TERMINATION RESISTOR))
(RSL : RQ(0:7), RQA(0:8), RQB(0:8), RD_CTM, RD_CTMN, RD_CFM, RD_CFMN, RD_CMD, RD_SCK)
(50 OHM IMPEDANCE : RD_REFCLK, RD_SCLKN, RD_PCLKN)
(ALL RSL SIGNALS, SCK, CMD, DIFF CLOCK PAIRS MUST HAVE MATCHED ELECTRICAL LENGTH)

(CHANNEL IMPEDANCE : 40 OHM)
(TRACE THICKNESS : 1 OZ CU)
(LENGTH OF LOADED SEGMENT : 748 MILS)
(TRACE WIDTH FOR UNLOADED SECTION : 10.4 MILS -> DEPENDENT ON VENDOR)
(MINIMUM UNLOADED PITCH : 30 MILS)
(FINISHED DIELECTRIC THICKNESS : 8 MILS -> DEPENDENT ON VENDOR))

(RDRAM FOR SHORT CHANNEL, 54PIN)

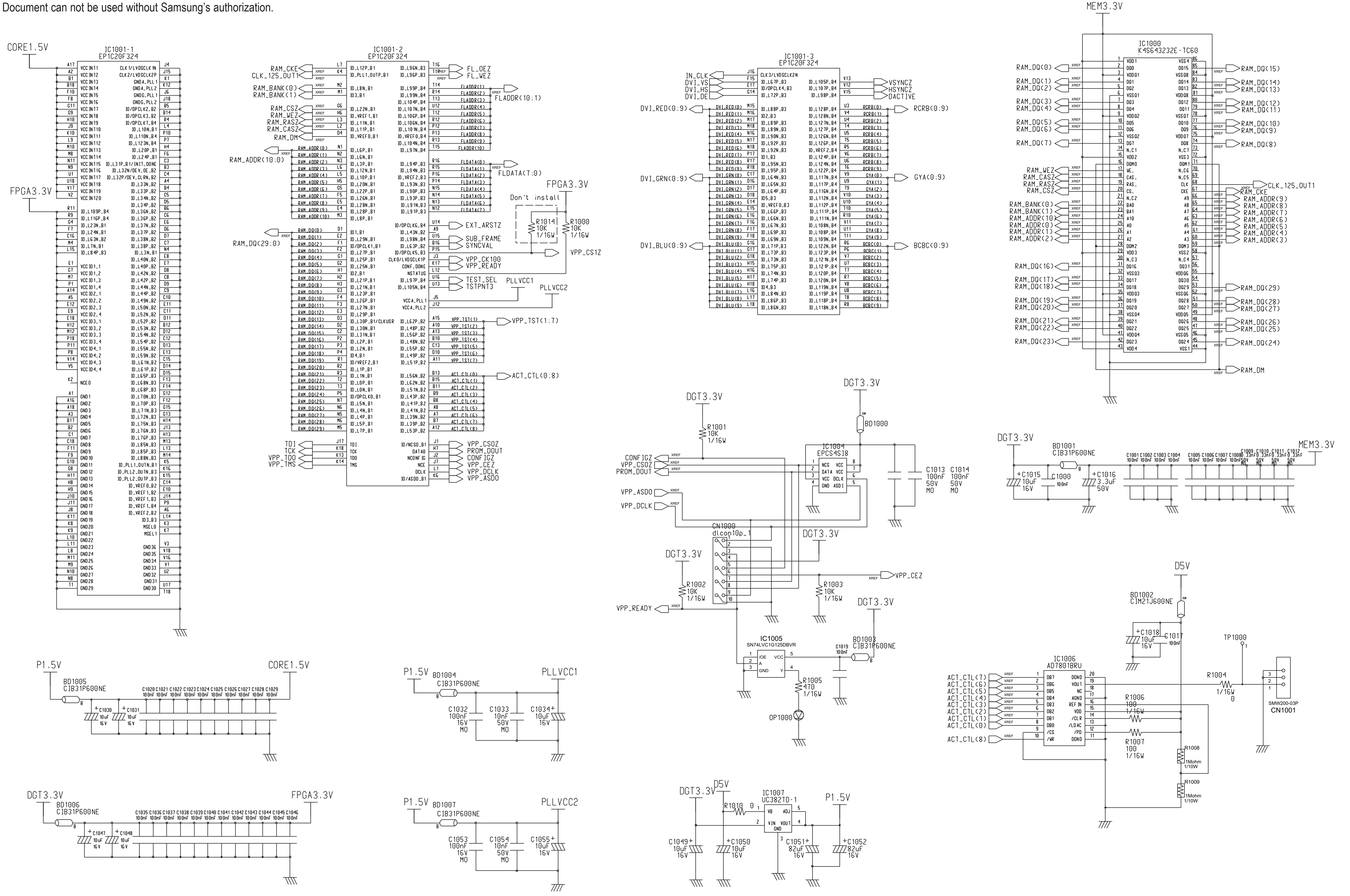
10-3-5 DMD Board-5

This Document can not be used without Samsung's authorization.


IC117
DDP1011
FLDATA(0:15)
FLADDR(0:20)
RQ(0:7)
DQA(0:7)
DQB(0:8)
(JTAG)
DDP3.3V
DDP2.5V
DGT3.3V
INSTALL FOR ARM-ICE ONLY
NOT INSTALLED
(100 OHM DIFFERENTIAL)
(200MHz)
DDAN(0:15) DDAP(0:15)
DDBN(0:15) DDBP(0:15)
DCLKAP
DCLKAN
SCTLAP
SCTLAN
DCLKBP
DCLKBN
SCTLBP
SCTLBN
GYA(0:9)
RCRB(0:9)
BCBC(0:9)
DACTIVE
VSYNC
HSYNC
SYNCVAL
X201
KS750PCE 100MHz
MOSC
VPP_CK100
SDA_DDP
SCL_DDP
(DO NOT STUFF)
OCLKA
(80M)
TP204
(100M)
TP205
(74.25M)
WCLK
(74.25M DATA CLOCK)
DO NOT INSTALL
FOR USING FDB BEARING
MAKE THIS PORT LOW
FOR USING AIR BEARING
MAKE THIS PORT HIGH
VPP_CS1Z
M_SCL
M_SDA
SCPD_DO
SCPD_DI
SCPD_CLK
PWM0
PWM1
PWM2
LAMPSYNC
VPP_READY
MTRSELZ
MTRCLK
MTRDATA
DADINTZ
DAOSELZ
SUB_FRAME
DDP_CWINDEX
DMD_RSTZ
ASIC_READY
DMD_SELZ
HOLD_BOOTZ
CN809
(DO NOT STUFF)
CN810
SR16STROBE
SR16OEZ
SR16ADDR3
SR16ADDR2
SR16ADDR1
SR16ADDR0
SR16MODE1
SR16MODE0
SR16SEL1
SR16SEL0
SCP_CLK
SCP_DO
SCP_DI
TSTPNT3
(NOT USED. AMDP2. RM CLOCK)
(74.25M. FROM POSC)
DCLKB
DCLKA
PWMACC
PLM_ARSTZ
EXT_ARSTZ
IC204
SN74LVC1G125DBVR
DA_ARSTZ
IC120
MIC39150-2.5BU
L704
BLM41P600S

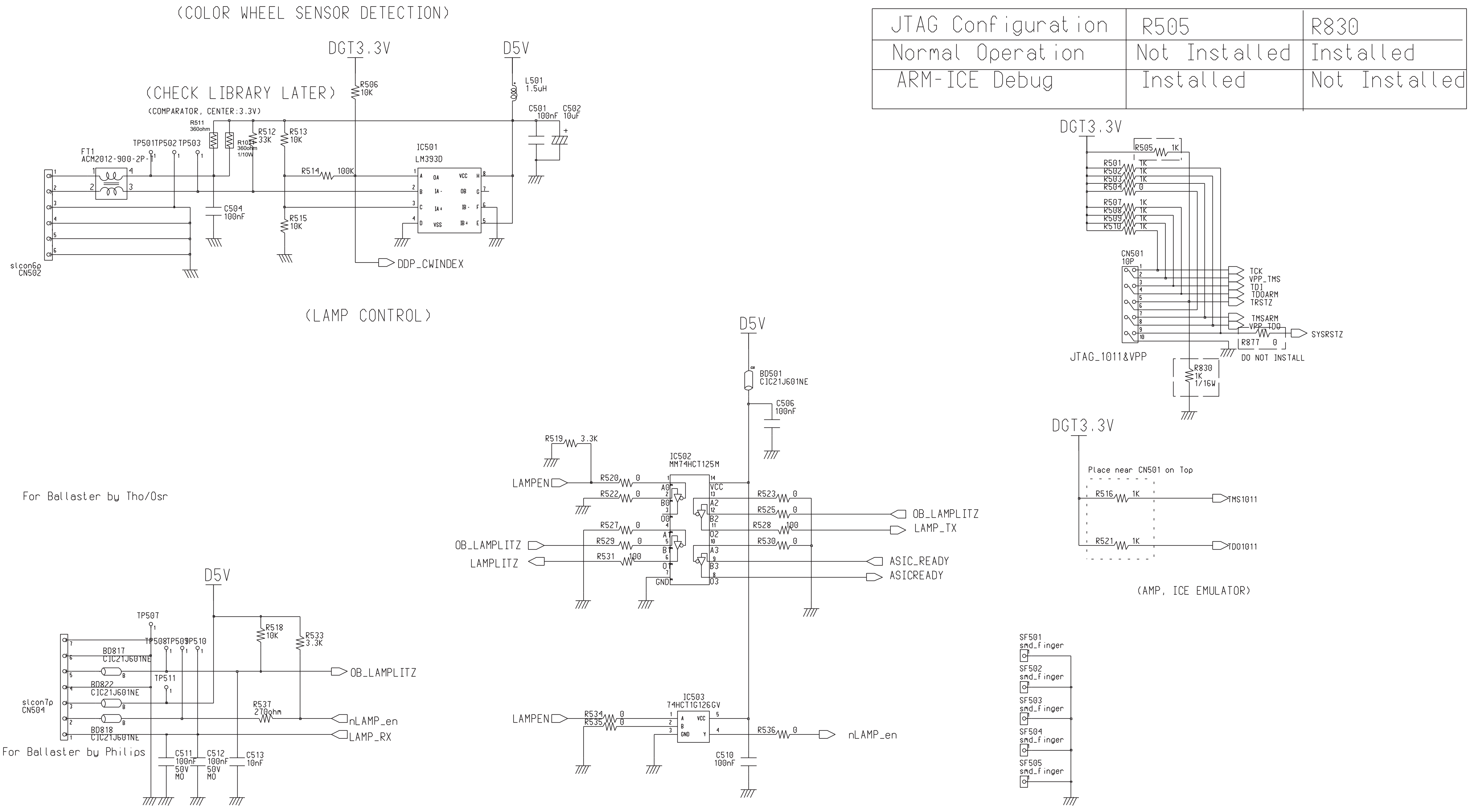
10-3-6 DMD Board-6

This Document can not be used without Samsung's authorization.


CORE1.5V
IC1001-1
EP1C20F324
FPGA3.3V
IC1001-2
EP1C20F324
RAM_CKE
CLK_125_OUT1
RAM_BANK(0)
RAM_BANK(1)
RAM_CSZ
RAM_WEZ
RAM_RASZ
RAM_CASZ
RAM_DM
RAM_ADDR(10:0)
RAM_DQ(29:0)
FL_OEZ
FL_WEZ
FLADDR(10:1)
FLDATA(7:0)
EXT_ARSTZ
SUB_FRAME
SYNCVAL
VPP_CK100
VPP_READY
TEST_SEL
TSTPNT3
PLLVCC1
PLLVCC2
VPP_TST(1:7)
ACT_CTL(0:8)
TDI
TCK
VPP_TDO
VPP_TMS
VPP_CSOZ
PROM_DOUT
CONFIGZ
VPP_CEZ
VPP_DCLK
VPP_ASDO
Don't install
R1014
10K
1/16W
R1000
10K
1/16W
VPP_CS1Z
IC1001-3
EP1C20F324
IN_CLK
DVI_VS
DVI_HS
DVI_DE
VSYNCZ
HSYNCZ
DACTIVE
DVI_RED(0:9)
RCRB(0:9)
DVI_GRN(0:9)
GYA(0:9)
DVI_BLU(0:9)
BCBC(0:9)
MEM3.3V
IC1000
K4S643232E-TC60
RAM_DQ(0)…RAM_DQ(29)
RAM_WEZ
RAM_CASZ
RAM_RASZ
RAM_CSZ
RAM_BANK(0)
RAM_BANK(1)
RAM_ADDR(10)
RAM_ADDR(0)…RAM_ADDR(9)
CLK_125_OUT1
RAM_CKE
RAM_DM
DGT3.3V
R1001
10K
1/16W
BD1000
IC1004
EPCS4SI8
C1013 100nF 50V MO
C1014 100nF 50V MO
CN1000
dlcon10p_1
R1002
10K
1/16W
R1003
10K
1/16W
VPP_READY
VPP_CEZ
BD1001
CIB31P600NE
C1015 10uF 16V
C1000 100nF
C1016 3.3uF 50V
C1001 C1002 C1003 C1004 C1005 C1006 C1007 C1008 C1009 C1010 C1011 C1012
IC1005
SN74LVC1G125DBVR
C1019 100nF
BD1003
CIB31P600NE
R1005
470
1/16W
OP1000
D5V
BD1002
CIM21J600NE
C1018 10uF 16V
C1017 100nF
TP1000
IC1006
AD7801BRU
ACT_CTL(7)…ACT_CTL(0)
ACT_CTL(8)
R1004
1/16W
0
R1006
100
1/16W
R1007
100
1/16W
R1008
1Mohm
1/10W
R1009
1Mohm
1/10W
SMW200-03P
CN1001
P1.5V
BD1005
CIB31P600NE
C1020 C1021 C1022 C1023 C1024 C1025 C1026 C1027 C1028 C1029 100nF
C1030 10uF 16V
C1031 10uF 16V
BD1004
CIB31P600NE
C1032 100nF 16V MO
C1033 10nF 50V MO
C1034 10uF 16V
BD1006
CIB31P600NE
C1035 C1036 C1037 C1038 C1039 C1040 C1041 C1042 C1043 C1044 C1045 C1046 100nF
C1047 10uF 16V
C1048 10uF 16V
BD1007
CIB31P600NE
C1053 100nF 16V MO
C1054 10nF 50V MO
C1055 10uF 16V
IC1007
UC382TD-1
R1010 0
C1049 10uF 16V
C1050 10uF 16V
C1051 82uF 16V
C1052 82uF 16V

10-3-7 DMD Board-7

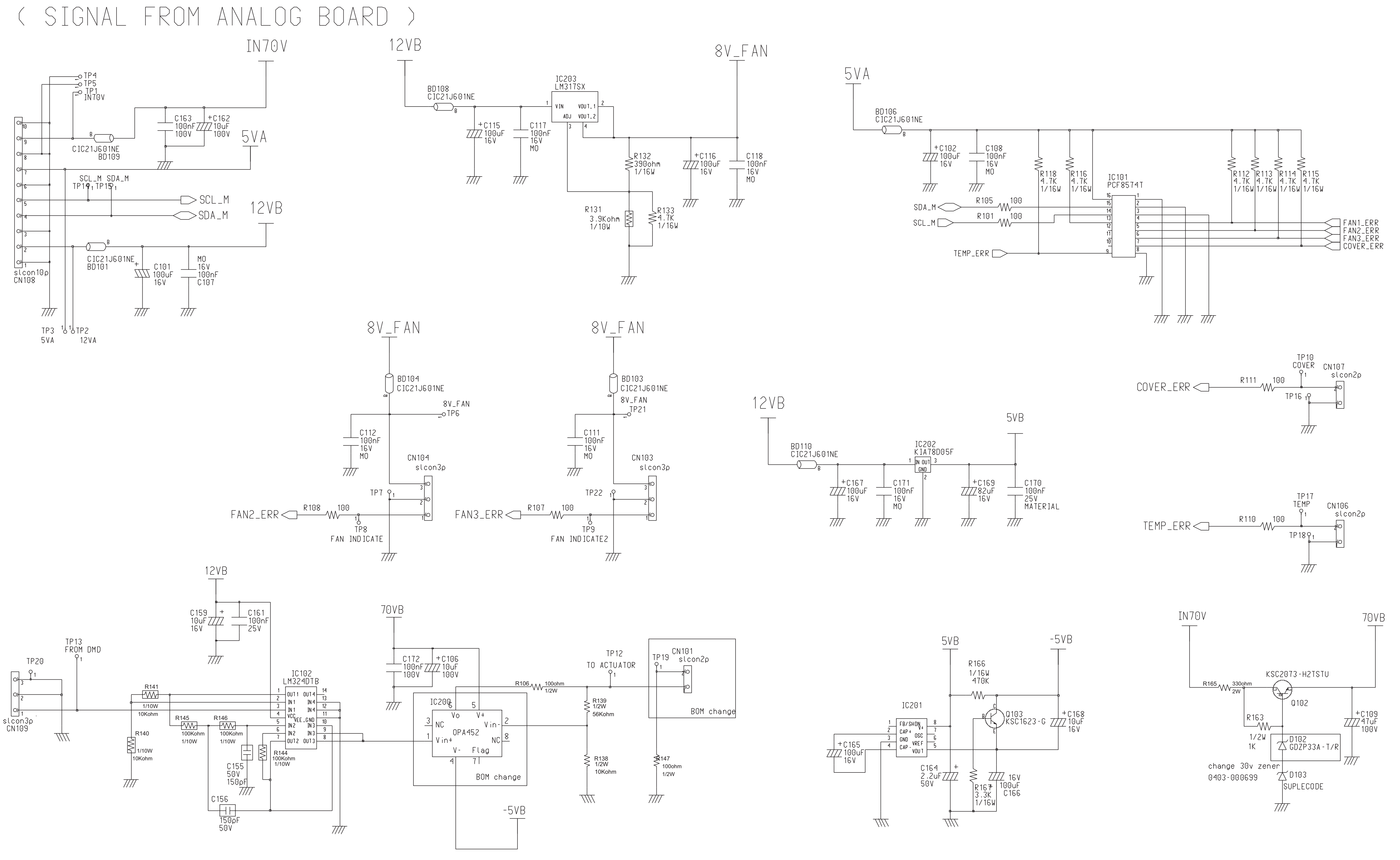
This Document can not be used without Samsung's authorization.


(COLOR WHEEL SENSOR DETECTION)
DGT3.3V
D5V
(CHECK LIBRARY LATER)
(COMPARATOR, CENTER:3.3V)
R506 10K
L501 1.5uH
C501 100nF
C502 10uF
R511 360ohm
R101 360ohm 1/10W
R512 33K
R513 10K
TP501 TP502 TP503
FT1 ACM2012-900-2P-T
IC501 LM393D
R514 100K
C504 100nF
R515 10K
slcon6p CN502
DDP_CWINDEX
(LAMP CONTROL)
D5V
BD501 CIC21J601NE
C506 100nF
R519 3.3K
IC502 MM74HCT125M
LAMPEN
R520 0
R522 0
R523 0
R525 0
R527 0
R528 100
R529 0
R530 0
R531 100
OB_LAMPLITZ
LAMP_TX
LAMPLITZ
ASIC_READY
ASICREADY
For Ballaster by Tho/Osr
D5V
TP507
TP508 TP509 TP510
TP511
BD817 CIC21J601NE
BD822 CIC21J601NE
BD818 CIC21J601NE
slcon7p CN504
R518 10K
R533 3.3K
R537 270ohm
OB_LAMPLITZ
nLAMP_en
LAMP_RX
For Ballaster by Philips
C511 100nF 50V MO
C512 100nF 50V MO
C513 10nF
IC503 74HCT1G126GV
R534 0
R535 0
R536 0
nLAMP_en
C510 100nF
DGT3.3V
R505 1K
R501 1K
R502 1K
R503 1K
R504 0
R507 1K
R508 1K
R509 1K
R510 1K
CN501 10P
TCK
VPP_TMS
TDI
TDOARM
TRSTZ
TMSARM
VPP_TDO
SYSRSTZ
R877 0
DO NOT INSTALL
JTAG_1011&VPP
R830 1K 1/16W
DGT3.3V
Place near CN501 on Top
R516 1K
TMS1011
R521 1K
TDO1011
(AMP, ICE EMULATOR)
SF501 smd_finger
SF502 smd_finger
SF503 smd_finger
SF504 smd_finger
SF505 smd_finger

JTAG Configuration	R505	R830
Normal Operation	Not Installed	Installed
ARM-ICE Debug	Installed	Not Installed

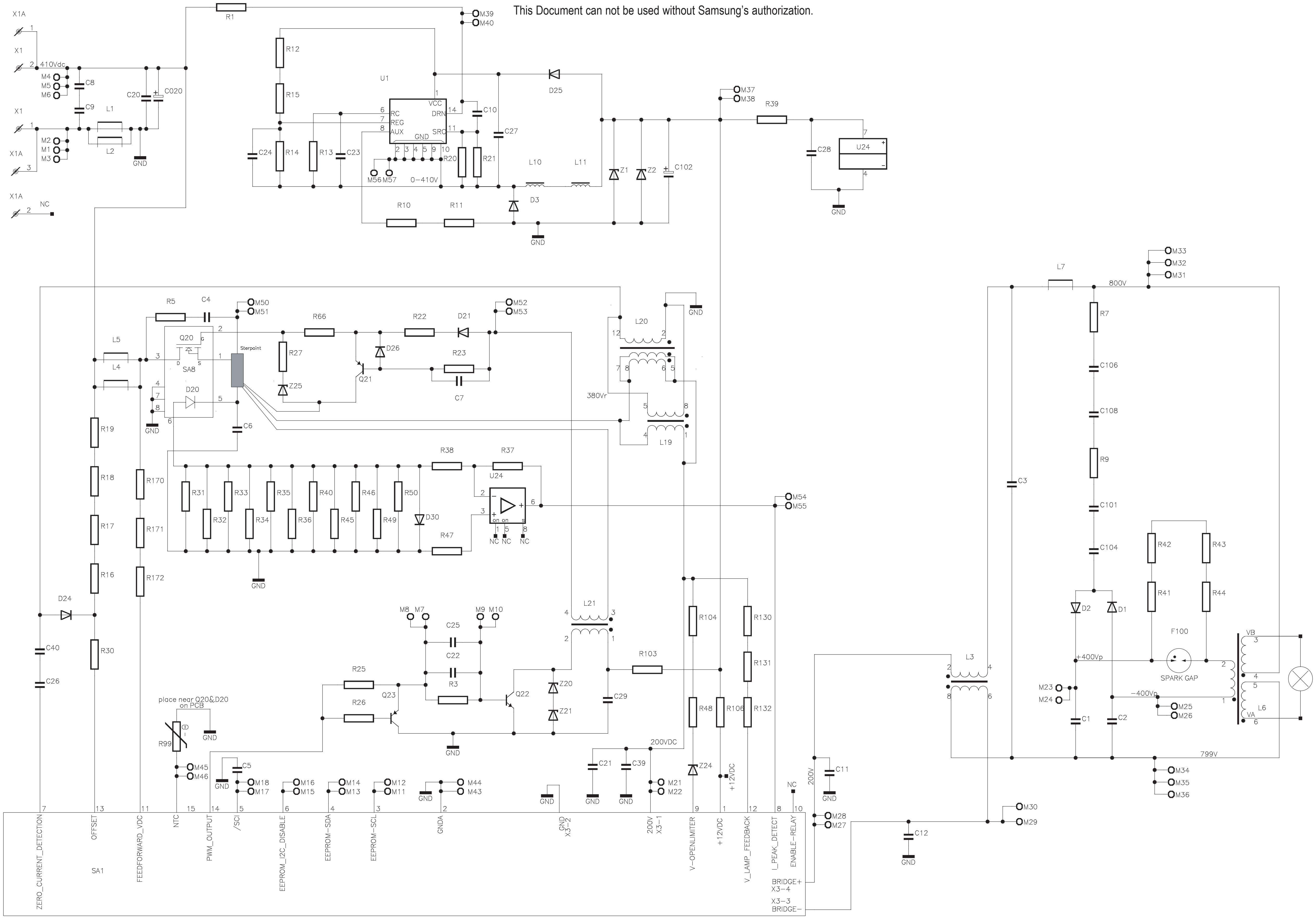
10-4 Actuator Board

This Document can not be used without Samsung's authorization.


(SIGNAL FROM ANALOG BOARD)
IN70V
TP4
TP5
TP1
IN70V
C163 100nF 100V
C162 10uF 100V
5VA
CIC21J601NE BD109
SCL_M SDA_M
TP14 TP15
SCL_M
SDA_M
12VB
CIC21J601NE BD101
C101 100uF 16V
MO 16V 100nF C107
slcon10p CN108
TP3 5VA
TP2 12VA
12VB
BD108 CIC21J601NE
C115 100uF 16V
C117 100nF 16V MO
IC203 LM317SX
VIN VOUT_1 ADJ VOUT_2
8V_FAN
R132 390ohm 1/16W
C116 100uF 16V
C118 100nF 16V MO
R131 3.9Kohm 1/10W
R133 4.7K 1/16W
5VA
BD106 CIC21J601NE
C102 100uF 16V
C108 100nF 16V MO
R118 4.7K 1/16W
R116 4.7K 1/16W
IC101 PCF8574T
R112 4.7K 1/16W
R113 4.7K 1/16W
R114 4.7K 1/16W
R115 4.7K 1/16W
SDA_M
SCL_M
R105 100
R101 100
TEMP_ERR
FAN1_ERR
FAN2_ERR
FAN3_ERR
COVER_ERR
8V_FAN
BD104 CIC21J601NE
8V_FAN TP6
C112 100nF 16V MO
CN104 slcon3p
TP7
FAN2_ERR
R108 100
TP8 FAN INDICATE
8V_FAN
BD103 CIC21J601NE
8V_FAN TP21
C111 100nF 16V MO
CN103 slcon3p
TP22
FAN3_ERR
R107 100
TP9 FAN INDICATE2
12VB
BD110 CIC21J601NE
IC202 KIA78D05F
IN OUT GND
5VB
C167 100uF 16V
C171 100nF 16V MO
C169 82uF 16V
C170 100nF 25V MATERIAL
TP10 COVER
CN107 slcon2p
COVER_ERR
R111 100
TP16
TP17 TEMP
CN106 slcon2p
TEMP_ERR
R110 100
TP18
12VB
C159 10uF 16V
C161 100nF 25V
TP13 FROM DMD
TP20
slcon3p CN109
R141 1/10W 10Kohm
R140 1/10W 10Kohm
R145 100Kohm 1/10W
R146 100Kohm 1/10W
IC102 LM324DTB
OUT1 OUT4 IN1 IN4 IN1 IN4 VCC VEE_GND IN2 IN3 IN2 IN3 OUT2 OUT3
C155 50V 150pF
R144 100Kohm 1/10W
C156 150pF 50V
70VB
C172 100nF 100V
C106 10uF 100V
IC200
Vo V+ NC Vin- Vin+ NC V- Flag
OPA452
BOM change
-5VB
R106 100ohm 1/2W
TP12 TO ACTUATOR
R139 1/2W 56Kohm
R138 1/2W 10Kohm
TP19
CN101 slcon2p
R147 100ohm 1/2W
BOM change
5VB
-5VB
R166 1/16W 470K
IC201
FB/SHDN V+ CAP+ OSC GND VREF CAP- VOUT
Q103 KSC1623-G
C168 10uF 16V
C165 100uF 16V
C164 2.2uF 50V
R167 3.3K 1/16W
16V 100uF C166
IN70V
70VB
R165 330ohm 2W
KSC2073-H2TSTU
Q102
R163 1/2W 1K
D102 GDZP33A-T/R
C109 47uF 100V
change 30v zener 0403-000699
D103 SUPLECODE

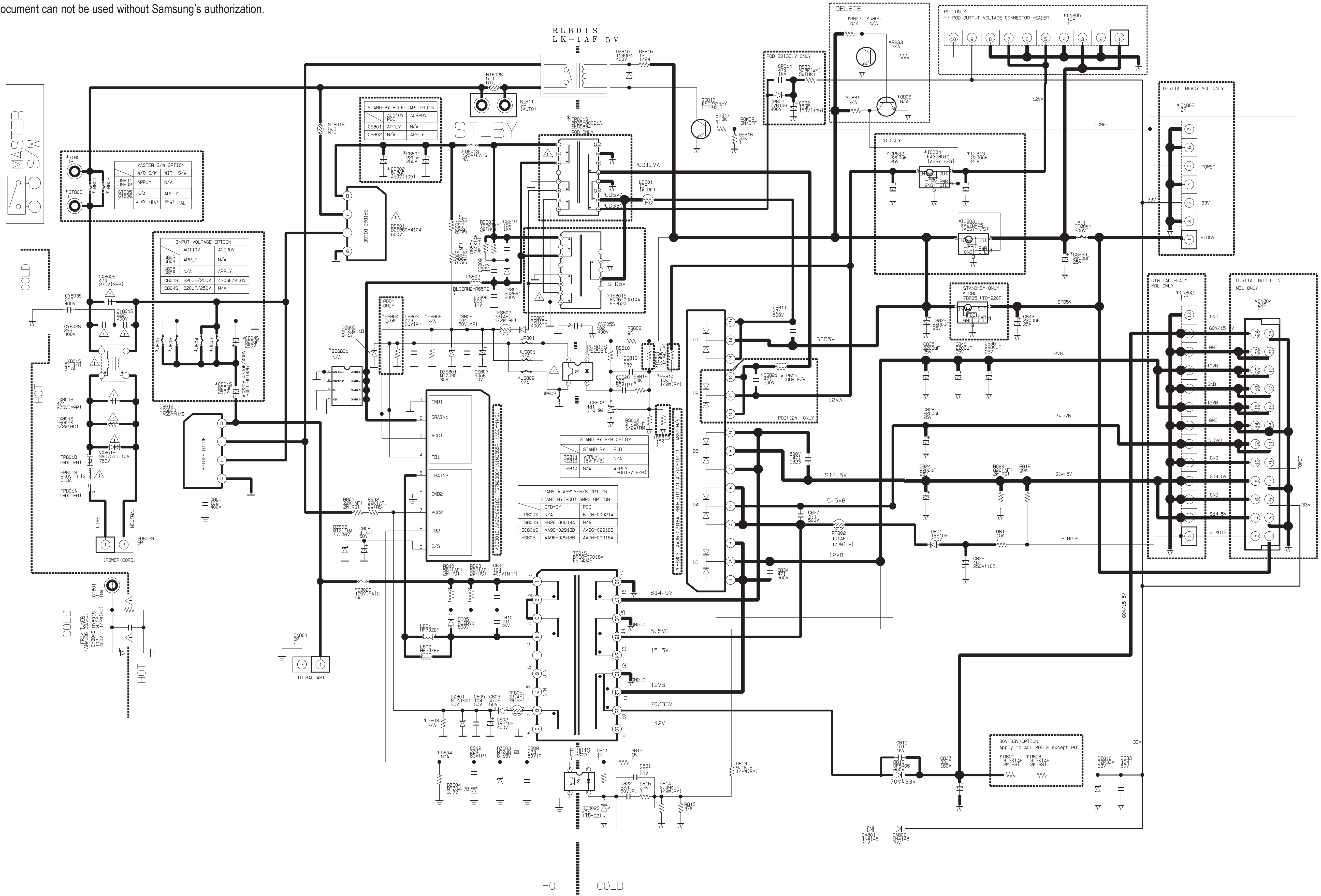
10-5 Ballast

This Document can not be used without Samsung's authorization.


X1A
X1
410Vdc
M4
M5
M6
C8
C9
C20
C020
L1
L2
M2
M1
M3
GND
NC
R1
M39
M40
R12
R15
U1
VCC
DRN
RC
REG
AUX
GND
SRC
C24
R14
R13
C23
M56
M57
0-410V
R20
R21
C10
C27
D25
L10
L11
D3
R10
R11
Z1
Z2
C102
M37
M38
R39
C28
U24
L7
800V
M33
M32
M31
R5
C4
M50
M51
R66
R22
D21
M52
M53
L20
L5
L4
Q20
SA8
Sterpoint
R27
Z25
D26
Q21
R23
C7
D20
C6
380Vr
L19
R7
C106
C108
R9
C3
C101
C104
R19
R18
R17
R16
R170
R171
R172
R31
R32
R33
R34
R35
R36
R40
R45
R46
R49
R50
D30
R38
R37
U24
R47
NC
M54
M55
R42
R43
R41
R44
D2
D1
F100
D24
R30
C40
C26
M8
M7
M9
M10
C25
C22
R3
R25
R26
Q23
Q22
L21
Z20
Z21
C29
R103
R104
R130
R131
R48
R106
R132
L3
+400Vp
-400Vp
SPARK GAP
M23
M24
C1
C2
M25
M26
VB
VA
L6
place near Q20&D20 on PCB
R99
M45
M46
C5
M18
M17
M16
M15
M14
M13
M12
M11
M44
M43
200VDC
C21
C39
M21
M22
Z24
+12VDC
200V
C11
NC
799V
M34
M35
M36
M30
M29
M28
M27
C12
ZERO_CURRENT_DETECTION
OFFSET
FEEDFORWARD_VDC
NTC
PWM_OUTPUT
/SCI
EEPROM_I2C_DISABLE
EEPROM-SDA
EEPROM-SCL
GNDA
GND X3-2
200V X3-1
V-OPENLIMITER
+12VDC
V_LAMP_FEEDBACK
I_PEAK_DETECT
ENABLE-RELAY
SA1
BRIDGE+ X3-4
X3-3 BRIDGE-

10-6 Power Board

This Document can not be used without Samsung's authorization.


RL801S
LK-1AF 5V
MASTER S/W
COLD
HOT
ST_BY
BRIDGE DIODE
POD12VA
POD5VA
POD33V
STD5V
DELETE
POD 30(33)V ONLY
POD ONLY
=> POD OUTPUT VOLTAGE CONNECTOR HEADER
DIGITAL READY MDL ONLY
DIGITAL READY-MDL ONLY
DIGITAL BUILT-IN - MDL ONLY
STAND-BY ONLY
POD(12V) ONLY
(POWER CORD)
TO BALLAST
LIVE
NEUTRAL
S14.5V
5.5VB
15.5V
12VB
70/33V
-12V
12VA
POWER
33V
S-MUTE
60V/15.5V
30V(33V)OPTION
Apply to ALL-MODLE except POD
*IC801S AA96-02918B FS7M0880/KA1M0565R (ASSY-H/S)
*HS803 AA96-02918A MBRF10100CT(4)/UGF10GCT (ASSY-H/S)
T801S
BP26-00018A
EER4245

MASTER S/W OPTION		
	W/O S/W	WITH S/W
JM801 JM802	APPLY	N/A
GT805 GT806	N/A	APPLY
	미주 대만	국판 PAL

STAND-BY BULK-CAP OPTION		
	AC110V POD	AC220V
CS801	APPLY	N/A
CS802	N/A	APPLY

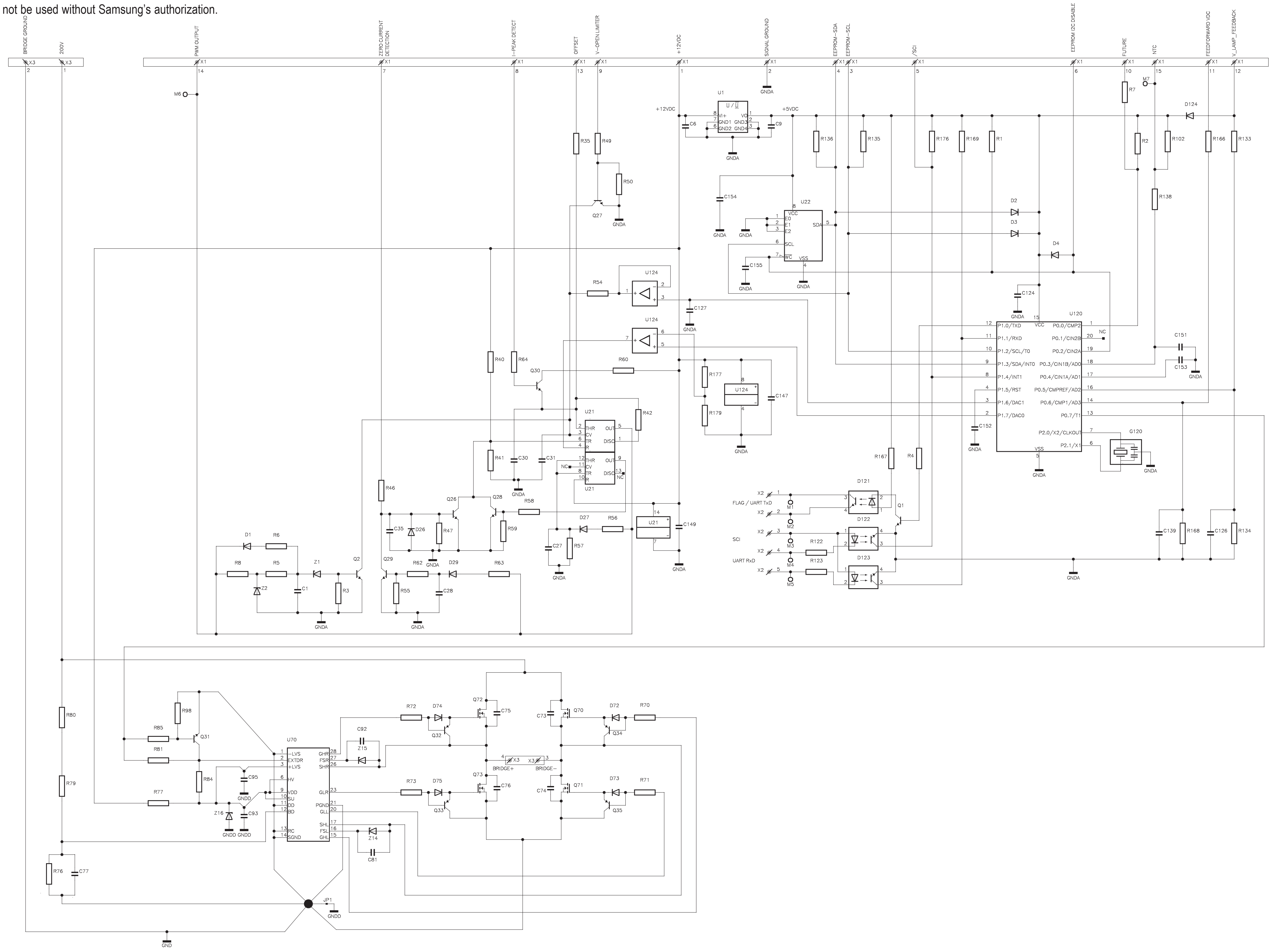
INPUT VOLTAGE OPTION		
	AC110V	AC220V
J803 J804	APPLY	N/A
J805 J806	N/A	APPLY
C801S	820uF/250V	470uF/450V
C804S	820uF/250V	N/A

STAND-BY F/B OPTION		
	STAND-BY	POD
RS811 RS813	APPLY (5V F/B)	N/A
RS814	N/A	APPLY (POD12V F/B)

TRANS & ASS'Y-H/S OPTION STAND-BY(POD) SMPS OPTION		
	STD-BY	POD
TP801S	N/A	BP26-00021A
TS801S	BN26-00014A	N/A
IC801S	AA96-02918D	AA96-02918B
HS803	AA96-02918B	AA96-02918A

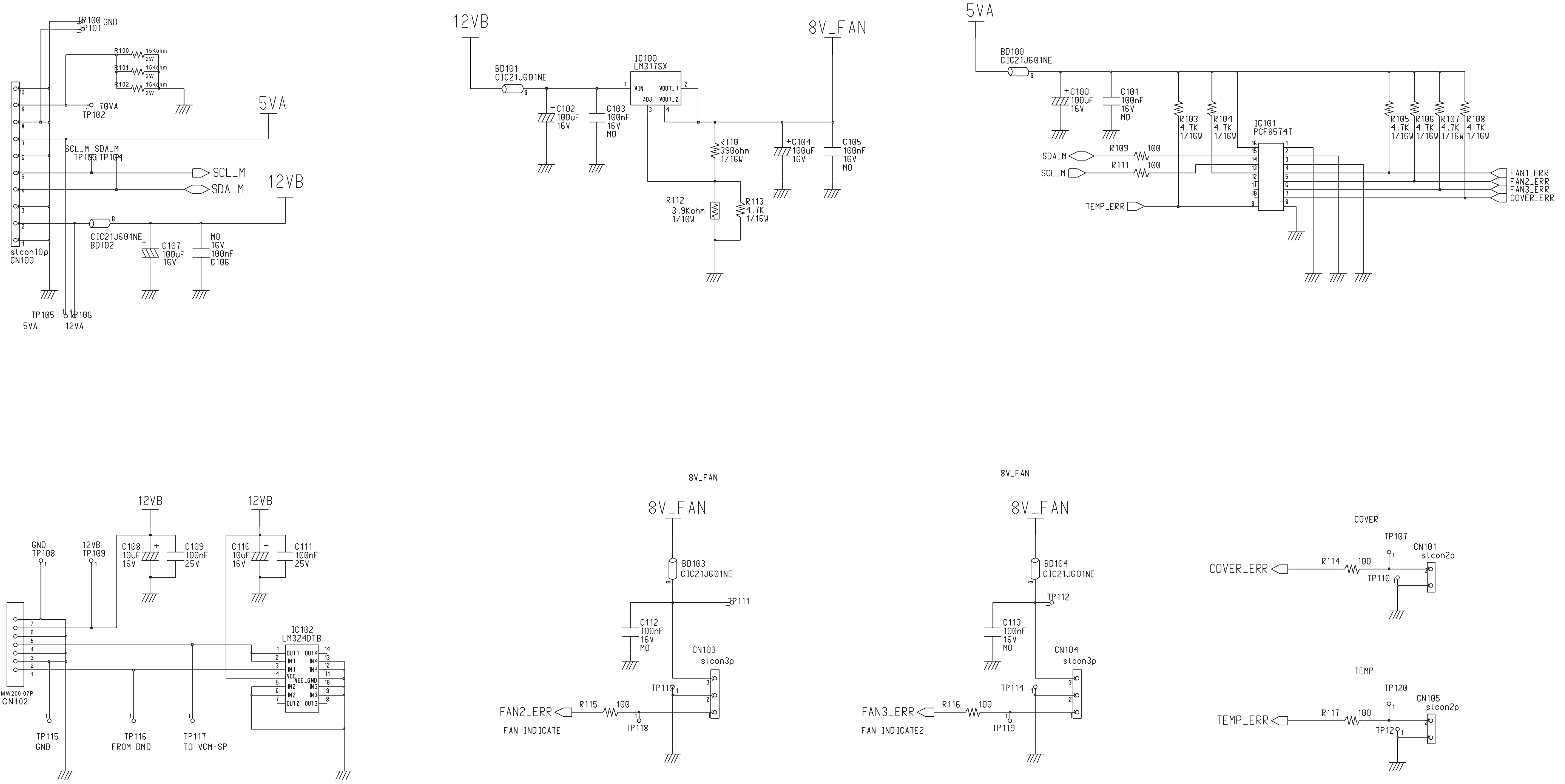
10-7 Combined Bridge and Control Module

This Document can not be used without Samsung's authorization.


BRIDGE GROUND
200V
X3
PWM OUTPUT
ZERO CURRENT DETECTION
I--PEAK DETECT
OFFSET
V--OPEN LIMITER
+12VDC
SIGNAL GROUND
EEPROM--SDA
EEPROM--SCL
/SCI
EEPROM I2C DISABLE
FUTURE
NTC
FEEDFORWARD VDC
V_LAMP_FEEDBACK
X1
M6
M7
U1
+12VDC
+5VDC
VI+
VO
GND1
GND2
GND3
GND4
C6
C9
GNDA
R35
R49
R50
Q27
R136
R135
R176
R169
R1
R7
R2
R102
R166
R133
D124
R138
C154
U22
VCC
E0
E1
E2
SCL
SDA
WC
VSS
C155
D2
D3
D4
C124
U124
R54
C127
U120
P1.0/TXD
P1.1/RXD
P1.2/SCL/T0
P1.3/SDA/INT0
P1.4/INT1
P1.5/RST
P1.6/DAC1
P1.7/DAC0
P0.0/CMP2
P0.1/CIN2B
P0.2/CIN2A
P0.3/CIN1B/AD0
P0.4/CIN1A/AD1
P0.5/CMPREF/AD2
P0.6/CMP1/AD3
P0.7/T1
P2.0/X2/CLKOUT
P2.1/X1
NC
C151
C153
C152
G120
R40
R64
Q30
R60
R177
R179
C147
U21
THR
CV
TR
R
OUT
DISC
R42
R41
C30
C31
R167
R4
D121
D122
D123
Q1
FLAG / UART TxD
SCI
UART RxD
X2
M1
M2
M3
M4
M5
R122
R123
C139
R168
C126
R134
R46
Q26
Q28
R58
C35
D26
R47
R59
C149
D27
R56
C27
R57
D1
R6
R8
R5
Z1
Q2
Z2
C1
R3
Q29
R62
D29
R63
R55
C28
R80
R79
R76
C77
R98
R85
Q31
R81
R84
R77
Z16
C95
C93
GNDD
U70
-LVS
EXTDR
+LVS
HV
VDD
SU
DD
BD
RC
SGND
GHR
FSR
SHR
GLR
PGND
GLL
SHL
FSL
GHL
C92
Z15
Z14
C81
R72
D74
Q72
C75
Q32
R73
D75
Q73
C76
Q33
C73
Q70
D72
R70
Q34
C74
Q71
D73
R71
Q35
BRIDGE+
BRIDGE-
JP1
GND

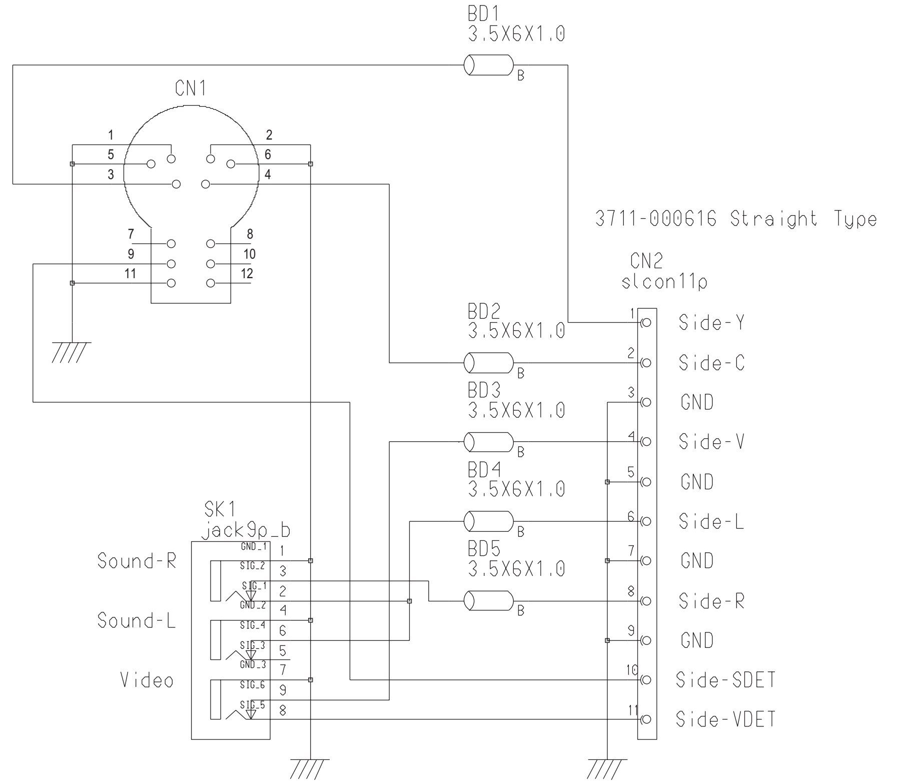
10-8 Detect

This Document can not be used without Samsung's authorization.


TP100 GND
TP101
R100 15Kohm 2W
R101 15Kohm 2W
R102 15Kohm 2W
TOVA
TP102
5VA
SCL_M SDA_M
TP103 TP104
SCL_M
SDA_M
12VB
CIC21J601NE
BD102
C107 100uF 16V
MO 16V 100nF C106
slcon10p
CN100
TP105 5VA
TP106 12VA
12VB
BD101
CIC21J601NE
IC100
LM317SX
VIN VOUT_1 VOUT_2 ADJ
C102 100uF 16V
C103 100nF 16V MO
8V_FAN
R110 390ohm 1/16W
C104 100uF 16V
C105 100nF 16V MO
R112 3.9Kohm 1/10W
R113 4.7K 1/16W
5VA
BD100
CIC21J601NE
C100 100uF 16V
C101 100nF 16V MO
R103 4.7K 1/16W
R104 4.7K 1/16W
IC101
PCF8574T
R105 4.7K 1/16W
R106 4.7K 1/16W
R107 4.7K 1/16W
R108 4.7K 1/16W
SDA_M
SCL_M
R109 100
R111 100
TEMP_ERR
FAN1_ERR
FAN2_ERR
FAN3_ERR
COVER_ERR
12VB
12VB
GND TP108
12VB TP109
C108 10uF 16V
C109 100nF 25V
C110 10uF 16V
C111 100nF 25V
IC102
LM324DTB
OUT1 IN1 IN1 VCC IN2 IN2 OUT2
OUT4 IN4 IN4 VEE_GND IN3 IN3 OUT3
SMW200-07P
CN102
TP115 GND
TP116 FROM DMD
TP117 TO VCM-SP
8V_FAN
8V_FAN
BD103
CIC21J601NE
TP111
C112 100nF 16V MO
CN103
slcon3p
TP113
FAN2_ERR
R115 100
TP118
FAN INDICATE
8V_FAN
8V_FAN
BD104
CIC21J601NE
TP112
C113 100nF 16V MO
CN104
slcon3p
TP114
FAN3_ERR
R116 100
TP119
FAN INDICATE2
COVER
TP107
CN101
slcon2p
COVER_ERR
R114 100
TP110
TEMP
TP120
CN105
slcon2p
TEMP_ERR
R117 100
TP121

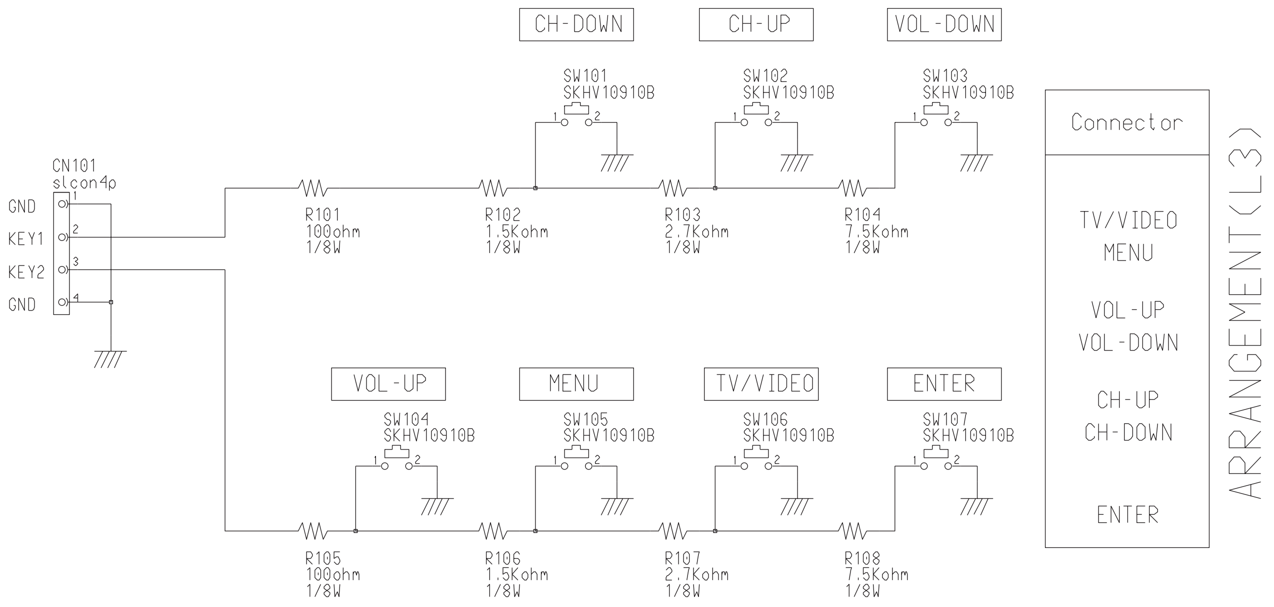
10-9 Side-AV

This Document can not be used without Samsung's authorization.


BD1
3.5X6X1.0
CN1
3711-000616 Straight Type
CN2
slcon11p
BD2
3.5X6X1.0
BD3
3.5X6X1.0
BD4
3.5X6X1.0
BD5
3.5X6X1.0
SK1
jack9p_b
Sound-R
Sound-L
Video
Side-Y
Side-C
GND
Side-V
GND
Side-L
GND
Side-R
GND
Side-SDET
Side-VDET

10-10 Key Control

This Document can not be used without Samsung's authorization.

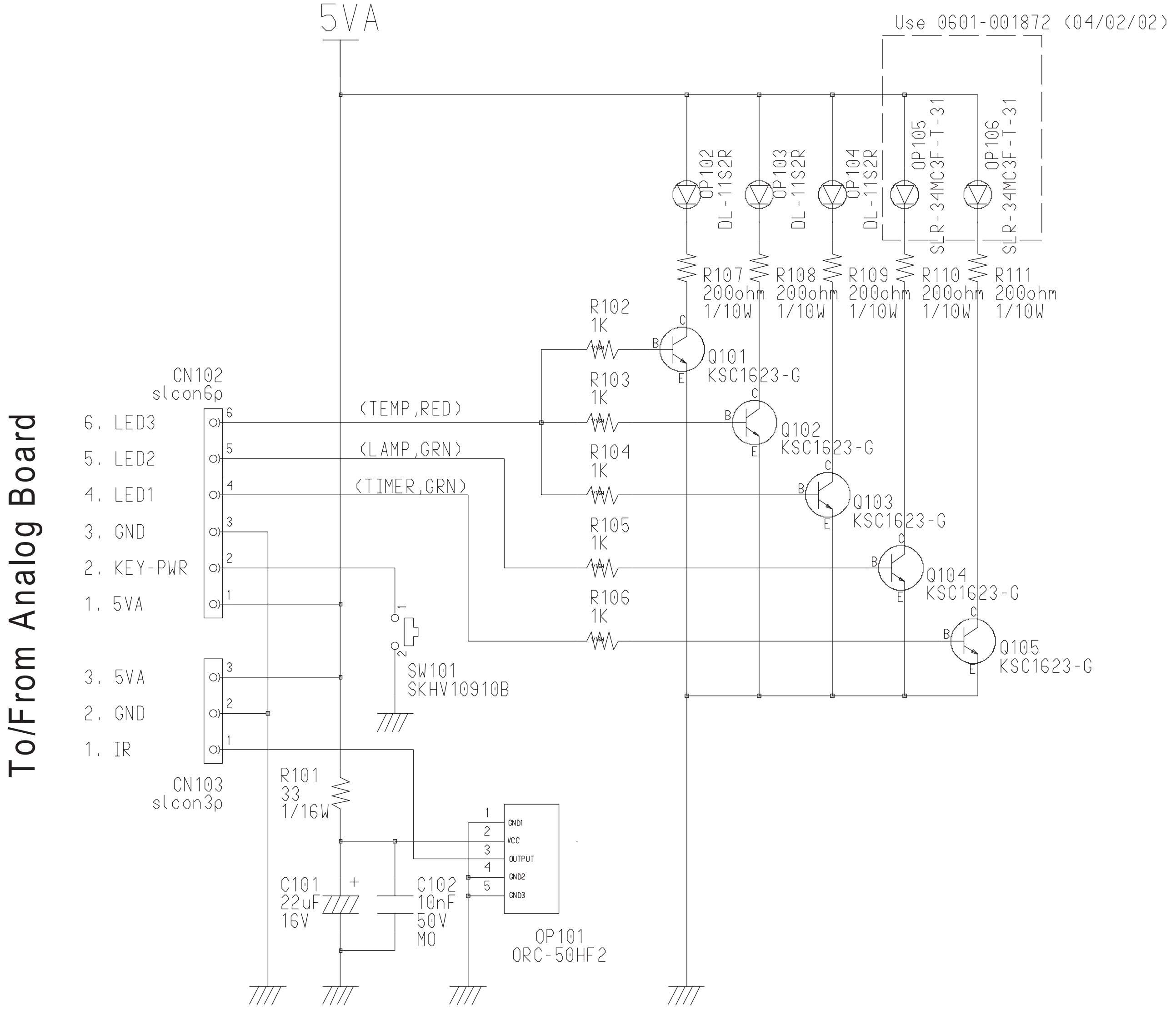

CH-DOWN
CH-UP
VOL-DOWN
SW101
SKHV10910B
SW102
SKHV10910B
SW103
SKHV10910B
CN101
slcon4p
GND
KEY1
KEY2
GND
R101
100ohm
1/8W
R102
1.5Kohm
1/8W
R103
2.7Kohm
1/8W
R104
7.5Kohm
1/8W
Connector
TV/VIDEO
MENU
VOL-UP
VOL-DOWN
CH-UP
CH-DOWN
ENTER
ARRANGEMENT(L3)
VOL-UP
MENU
TV/VIDEO
ENTER
SW104
SKHV10910B
SW105
SKHV10910B
SW106
SKHV10910B
SW107
SKHV10910B
R105
100ohm
1/8W
R106
1.5Kohm
1/8W
R107
2.7Kohm
1/8W
R108
7.5Kohm
1/8W

Key-Control Schematic Diagram

V0.4 : PCB Board Spec, Resister Value & Key Spec Change

10-11 RMC-LED

This Document can not be used without Samsung's authorization.


5VA
Use 0601-001872 (04/02/02)
OP102
DL-11S2R
OP103
DL-11S2R
OP104
DL-11S2R
OP105
SLR-34MC3F-T-31
OP106
SLR-34MC3F-T-31
R107
200ohm
1/10W
R108
200ohm
1/10W
R109
200ohm
1/10W
R110
200ohm
1/10W
R111
200ohm
1/10W
R102
1K
Q101
KSC1623-G
R103
1K
Q102
KSC1623-G
R104
1K
Q103
KSC1623-G
R105
1K
Q104
KSC1623-G
R106
1K
Q105
KSC1623-G
CN102
slcon6p
6. LED3
5. LED2
4. LED1
3. GND
2. KEY-PWR
1. 5VA
(TEMP,RED)
(LAMP,GRN)
(TIMER,GRN)
To/From Analog Board
SW101
SKHV10910B
3. 5VA
2. GND
1. IR
CN103
slcon3p
R101
33
1/16W
C101
22uF
16V
C102
10nF
50V
MO
GND1
VCC
OUTPUT
GND2
GND3
OP101
ORC-50HF2

Sub-Front Circuit

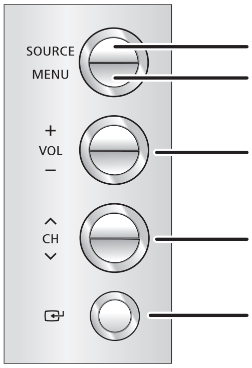
V0.4 : Connection Change

11. Operation Instruction & Installation

11-1 Product Features and Functions

11-1-1 Right side buttons

The buttons on the right side panel control your TV's basic features, including the on-screen menu system.
To use the more advanced features, you must use the remote control.



Press to switch between viewing TV programs and signals from connected components.

Press to see the on-screen menu.

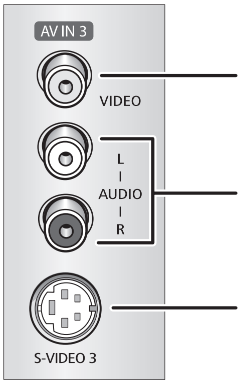
Press to raise or lower the volume and to select items when using the on-screen menu.

Press to change channels and move between items on the on-screen menu.

Press to activate (or change) a particular item.

11-1-2 Side Panel Jacks

Use the right side panel jacks to connect a component that is used only occasionally (a camcorder or video game, for example).



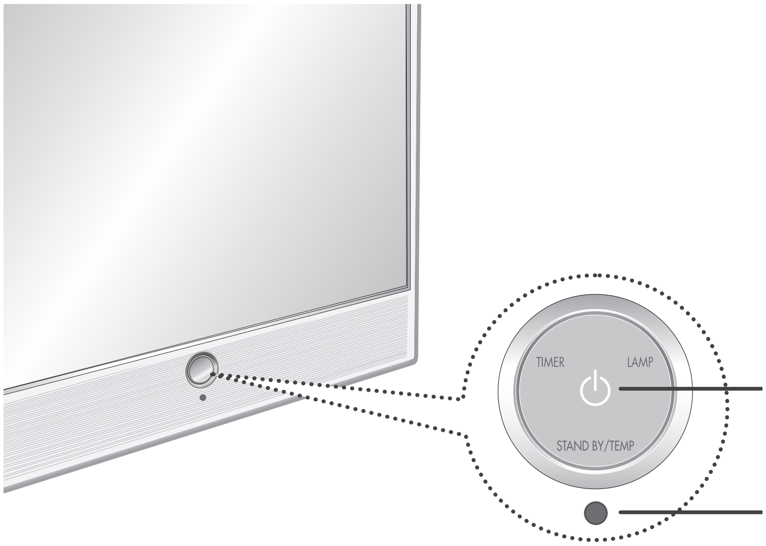
Connect the video signal from a camcorder or video game.

Connect the audio signal from a camcorder or video game.

Connect an S-Video signal from a camcorder or video game.
(S-Video 3 jack and Audio L/R input 3 are used in conjunction.)

11-1-3 Front Panel LED Indicators

The three lights on the front panel indicate the status of your TV.



POWER
Press to turn the TV on and off.

Remote Control Sensor
Aim the remote control towards this spot on the TV.

Indicator Light Key

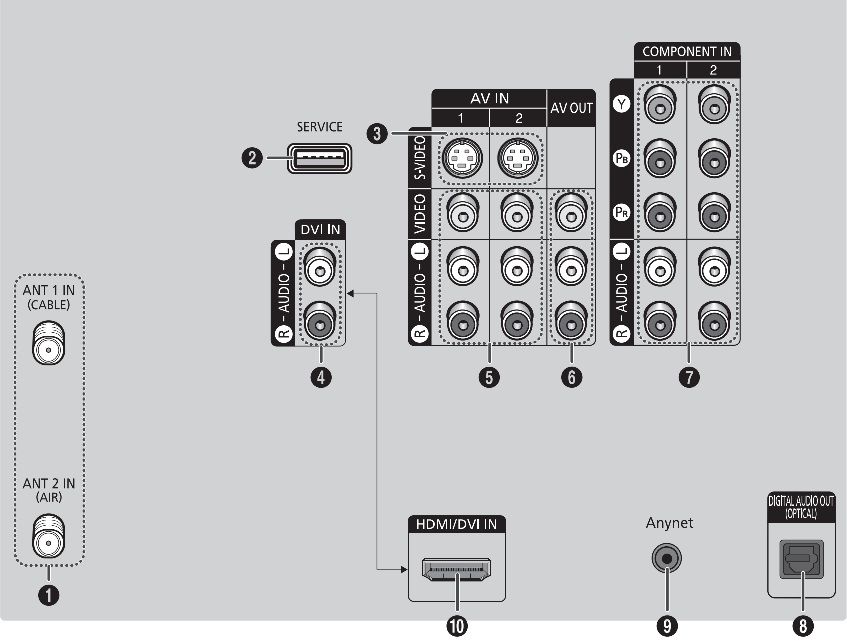
● : Light is On
◑ : Light is Blinking
○ : Light is Off

TIMER	LAMP	STAND BY/TEMP	Indication
○	○	●	Standby state.
○	◑	○	The picture will automatically appear in about 15 seconds.
●	◑	○	Auto Timer ON/OFF has been set and the set will automatically be turned on in about 25 seconds.
◑	○	◑	A cooling fan inside the set is not operating normally.
○	◑	◑	Lamp cover on the rear of the set is not properly shut.
○	○	◑	Check if the ventilation hole on the rear of the set is blocked, because if the inner temperature is too high, the power will shut off.
◑	◑	◑	Lamp may be defective.

- It takes about 30 seconds for the TV to warm up, so normal brightness may not appear immediately.
- The TV has a fan to keep the inside lamp from overheating. You'll occasionally hear it working.

11-1-4 Rear Panel Jacks

Use the rear panel jacks to connect components such as a VCR. You can connect different components such as VCRs, Set-Top Box and a DVD player etc., because there are two sets of video input jacks and two sets of component video input jacks on the rear panel of your TV. For more information, see "Connections".



① ANTENNA terminals

Two independent cables or antennas can be connected to these terminals. Use "ANT1 IN (CABLE)" and "ANT2 IN (AIR)" terminals to receive a signal from VHF/UHF antennas or your cable system.

② SERVICE

This jack is for software upgrades..

③ S-VIDEO INPUT jacks

Connects an S-Video signal from an S-VHS VCR or DVD player.

④ DVI (Digital Video Interface) AUDIO INPUT jacks

Connect to the digital audio output jacks of a device with DVI output.

⑤ VIDEO/AUDIO INPUT jacks

Connect video/audio signals from external sources, such as VCR or DVD players.

⑥ VIDEO/AUDIO OUTPUT jacks

Sends video/audio signals from the TV to an external source, such as a VCR. These jacks are available only in RF, Video and S-Video modes.

⑦ COMPONENT1, 2 jacks (Y, PB, PR, L, R)

Use these jacks to connect the component video/audio signals from a DVD player or a Set-Top Box.

⑧ DIGITAL AUDIO OUT(OPTICAL) jack

Connect to a Digital Audio Component.

⑨ Anynet

Please refer to the Anynet Owner's Instruction.

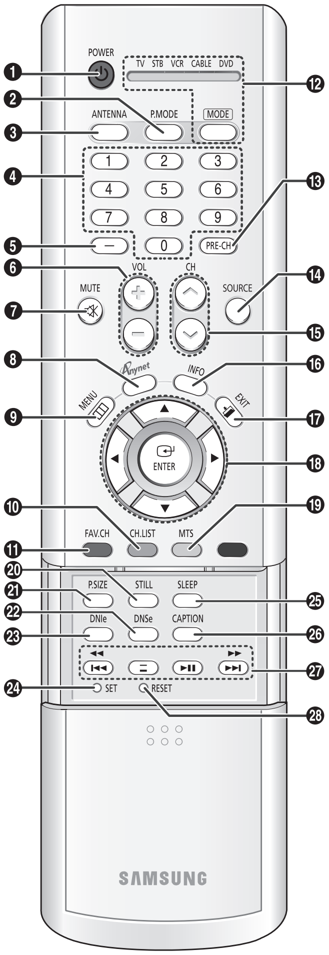
⑩ HDMI (High Definition Multimedia Interface)/
DVI INPUT jack

Connect to the HDMI jack of a device with HDMI output.
These inputs can also be used as a DVI connection with separate analog audio inputs. An optional HDMI/DVI cable will be necessary to make this connection. When using the optional HDMI/DVI adapter, the DVI analog audio inputs on your TV allow you to receive left and right audio from your DVI device.

11-1-5 Remote Control

You can use the remote control up to about 23 feet from the TV. When using the remote control, always point it directly at the TV. You can also use your remote control to operate your VCR, Cable box, DVD player or Samsung Set-Top Box.

1. POWER
   Turns the TV on and off.
2. P.MODE
   Adjust the TV picture by selecting one of the preset factory settings (or select your personal, customized picture settings.)
3. ANTENNA
   Press to select “AIR” or “CABLE”.
4. CHANNEL NUMBER
   Press to directly tune to a particular channel.
5. –
   Press to select additional channels (digital and analog) being broadcast by the same station. For example, to select channel “54-3”, press “54”, then press “–” and “3”.
6. VOL +, VOL -
   Press to increase or decrease the volume.
7. MUTE
   Press to mute the TV sound.
8. Anynet
   Runs the Anynet view functions and sets up Anynet devices.
9. MENU
   Displays the main on-screen menu.
10. CH.LIST
    Displays the channel list.
11. FAV.CH (Favorite Channel)
    Press to switch between your favorite channels.
12. MODE
    Selects a target device to be controlled by the Samsung remote control (i.e., TV, STB, VCR, CABLE, or DVD).
13. PRE-CH
    Tunes to the previous channel.
14. SOURCE
    Press to display all of the available video sources (i.e., TV, Set-Top Box, VCR, DVD, DTV).
15. CH ∧ / ∨
    Press to change channels.
    Moves from one set of screen information to the next in TV Guide menu.
16. INFO
    Press to display information on the TV screen.
17. EXIT
    Press to exit the menu.
18. ▲, ▼, ◀, ▶, ENTER
    Press to select highlight up, down, left, or right. While using the on-screen menus, press ENTER to activate (or change) a particular item.
19. MTS (Multichannel Television Stereo)
    Press to choose Stereo, Mono or SAP (Secondary Audio Program).
20. STILL
    Press to pause the current screen.
21. P.SIZE
    Press to change the screen size.
22. DNSe
    DNSe enhances the sound quality for a more vibrant reality, automatically controls output, and prevents sound distortion.
    Press this button to set it On or Off.
23. DNIe (Digital Natural Image engine)
    Activates DNIe Demo mode.
24. SET
    Used during set up of this remote control, so that it will work compatibly with other devices (Set-Top Box, VCR, Cable box, DVD, etc.)
25. SLEEP
    Press to select a preset time interval for automatic shut off.
26. CAPTION
    Controls the caption decoder.
27. VCR/DVD Controls
    Controls VCR or DVD functions: Rewind, Stop, Play/Pause, Fast Forward.
28. RESET
    If your remote control is not functioning properly, take out the batteries and press the reset button for about 2~3 seconds.
    Re-insert the batteries and try using the remote control again.



11-2 New Features

11-2-1 Anynet

Anynet is an AV network system that enables easy control of AV devices through the Anynet TV menu when multiple Samsung Electronics' AV devices are connected.

■ Advantages of Anynet:

- Anynet enables the user to control most functions of all devices connected to the TV using the TV remote control. Therefore, the user can control all devices with a single remote control without using the remote controls for the other devices. In addition, there is no need to press the switch device mode button on the remote control.
- Once the user has selected an operation using the Anynet menu, all other necessary steps are automatically executed through the Anynet network. Therefore, the user does not have to press various buttons on each of the remote controls.

  Example> To watch a "DVD": Existing method (press 9 buttons on 3 remote controls) →
  Anynet (press 2 buttons on one remote control)
- Through the Anynet network, the connected devices send control commands to each other and can view the operating status of other devices. Therefore, the user can use the TV remote control like a DVD remote control when watching a DVD title and can use the TV remote control like an STB remote control when watching an STB. The user can also easily select either the TV speaker or the 5.1 channel speakers through the receiver by using Anynet.

■ When Anynet is most Useful:

- When watching an external video source such as a DVD, STB, VTR, etc.
- When changing channels, adjusting the volume or switching scenes while watching an external video source.
- When changing the sound output device from the TV speaker to the 5.1 channel speaker.

■ Notice.

- The Anynet system only supports Anynet-supported AV devices.
- Anynet-supporting products are listed below. (Others except (2) and (4) are expected to support Anynet in the next model.)

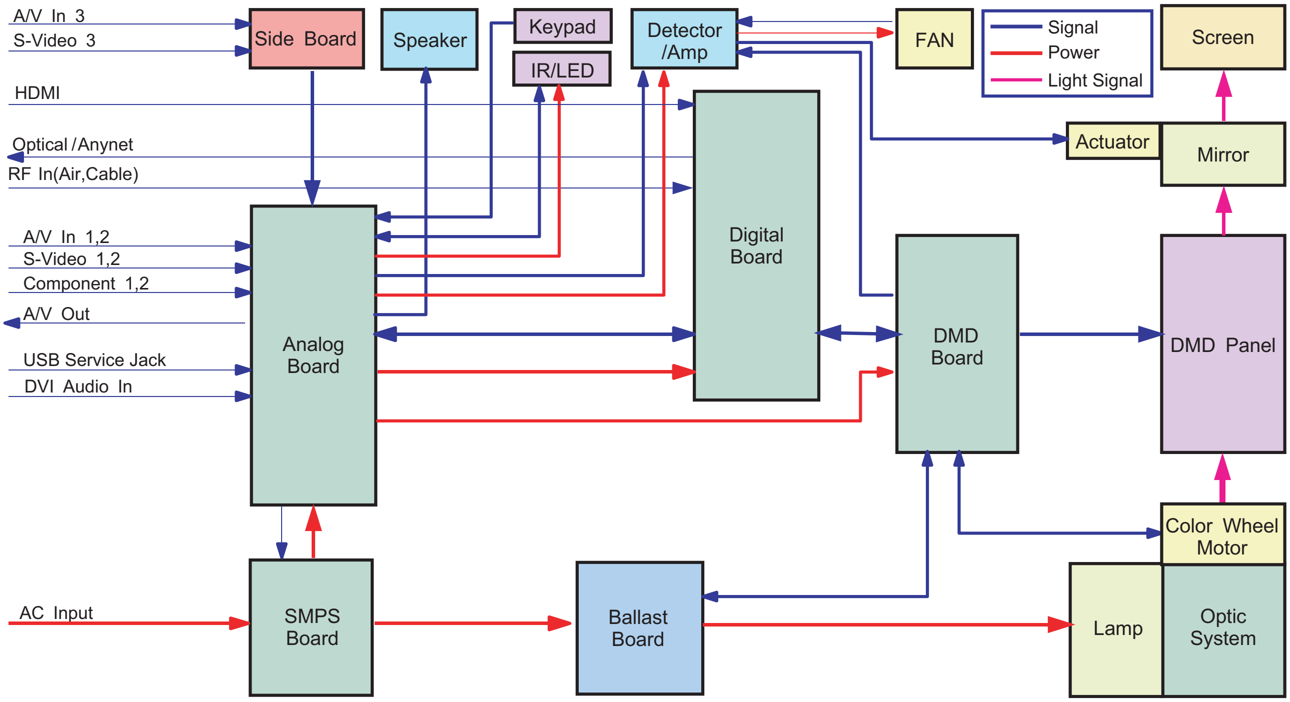
① DVD Player
② DVD Combo
③ DVD Recorder
④ DVD Receiver
⑤ DVD Recorder Combo
⑥ DVD Recorder Combo Receiver
⑦ AV Receiver
⑧ Satellite Set-Top-Box
⑨ Cable Set-Top-Box
⑩ HD Set-Top-Box

- All video lines are to be connected to the TV. Connect the video cable from an external video device, which is to be connected to Anynet, to the TV. When configuring Anynet, check the connectivity between devices to evaluate the current connection status.
- The Anynet system does not support the same model.
- An Anynet menu supports up to 2 devices except for the TV.
- The Anynet system only supports a single receiver.
- The Basic Connection means a connection without using a digital audio cable.
- The Advanced Connection means a connection using a digital audio cable.
- Anynet operates when the power cable is connected to an Anynet AV device and the device is in Standby status. The power cord is to be connected to the wall outlet.

MEMO

13. Circuit Description

13-1 Overall Block Description


A/V In 3
S-Video 3
Side Board
Speaker
Keypad
IR/LED
Detector /Amp
FAN
Signal
Power
Light Signal
Screen
HDMI
Optical /Anynet
RF In(Air,Cable)
Actuator
Mirror
Digital Board
A/V In 1,2
S-Video 1,2
Component 1,2
A/V Out
USB Service Jack
DVI Audio In
Analog Board
DMD Board
DMD Panel
Color Wheel Motor
AC Input
SMPS Board
Ballast Board
Lamp
Optic System

The DLP TV is largely divided into: Power part, Engine part and Analog + Digital parts.
The ass'y that consists of the DMD board, Detect (Actuator) board, lamp, ballast and optical devices is called the Engine.
The analog + digital board parts receive the AV signals to output voice signals and process the remote control signals.
The engine part displays the video data on the screen, which is generated in the analog + digital boards.

The AV signals are input through the analog and digital boards. ADV7401 processes the MUX and decoding while X226 B processes the CPU functions, MPEG and I2S.
Finally, the improved DNIe image is sent to the DMD engine board.

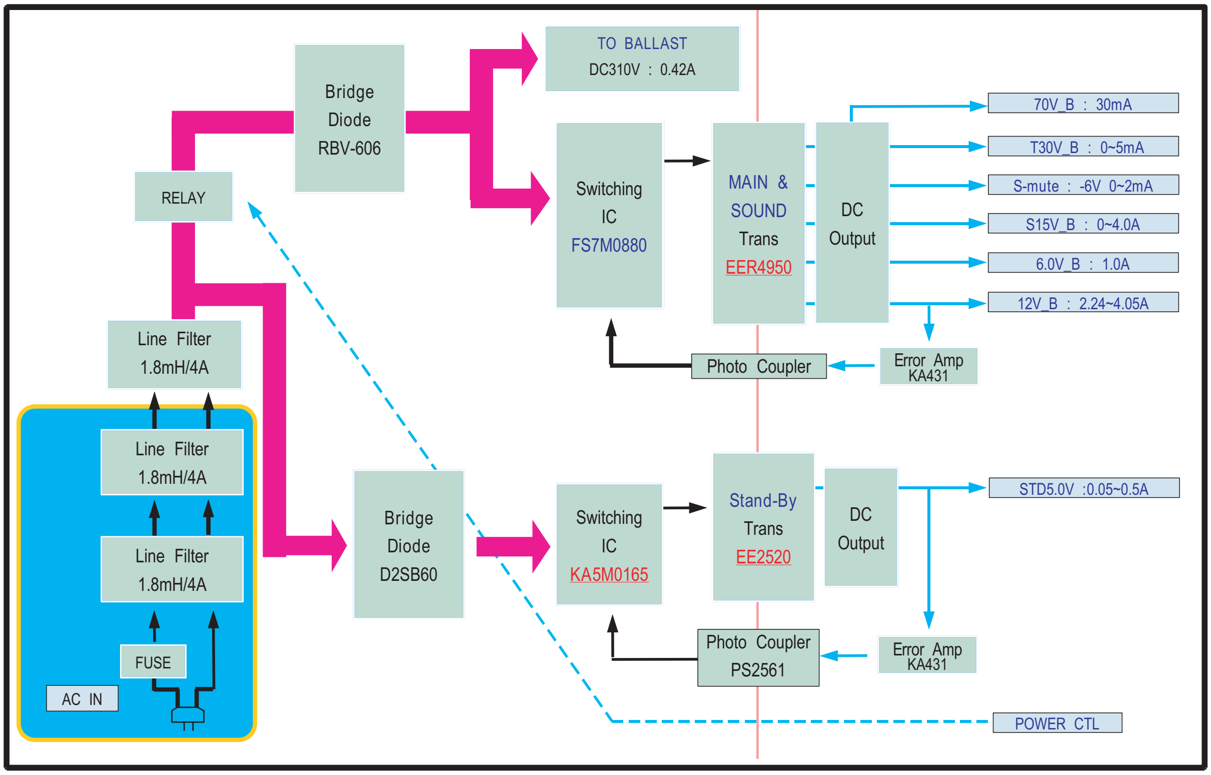
The final data by DNIe is processed in DDP1011 of the DMD board to display the image on the DMD panel. This image is created by the light of the lamp through the color wheel which is enlarged and projected onto the screen.
This is the DLP of the L3 or L6 type that the actuator operates additionally during this process.

The power terminal generates the DC power needed for the product and sends it to the analog board. The analog board supplies the power to the digital and DMD boards.
In the meantime, the power source board supplies DC220v - 400v directly to the ballast in order to light the lamp.
The ballast is like a stabilizer for lighting the lamp.

The ultimate purpose of the TV set is to project an image onto the screen and output the voice signals synchronized with the image. And based on the DMD panel used, a 1-panel TV requires a color wheel while a 3-panel TV does not. The HD4 panel needs an actuator while the HD2 does not. However, the drive mechanism and the overall block structure of the two panels are the same.

13-2 Partial Block Description

13-2-1 SMPS Block Description


TO BALLAST
DC310V : 0.42A
Bridge
Diode
RBV-606
RELAY
Switching
IC
FS7M0880
MAIN &
SOUND
Trans
EER4950
DC
Output
70V_B : 30mA
T30V_B : 0~5mA
S-mute : -6V 0~2mA
S15V_B : 0~4.0A
6.0V_B : 1.0A
12V_B : 2.24~4.05A
Line Filter
1.8mH/4A
Photo Coupler
Error Amp
KA431
Line Filter
1.8mH/4A
Line Filter
1.8mH/4A
FUSE
AC IN
Bridge
Diode
D2SB60
Switching
IC
KA5M0165
Stand-By
Trans
EE2520
DC
Output
STD5.0V :0.05~0.5A
Photo Coupler
PS2561
Error Amp
KA431
POWER CTL

1. What is SMPS?
   This is an acronym for Switching Mode Power Supply and this is responsible for receiving AC input voltage (Line frequency: 50HZ~60HZ) and supplying insulated DC output.

2. SMPS Components
   1) Standby Power: A combination of ICS801 (SWITCHING IC) and TS801S (TRANS) that supplies STAND-BY 5V for operating the Micom.
   2) Multi Power: The voltage supplied when the power is turned on.
      It is a combination of IC801S and T801S that supplies various voltages including D12V, A6.5V, S14.5V, T30V and A65V.

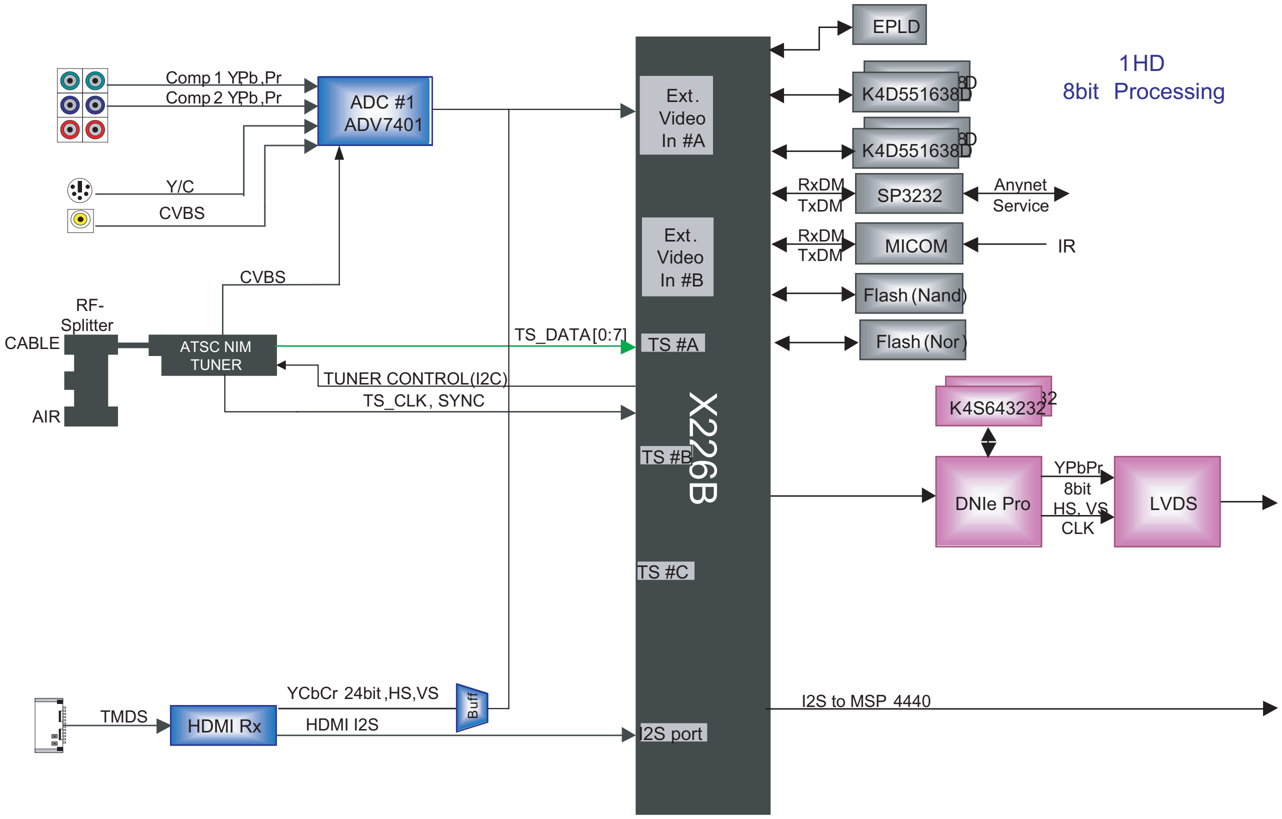
3. SMPS Operation
   1) SMPS System: Uses Fly-Back technology for both standby and multi power.
   2) Operation: Fly-Back is one of the most popular power-supply systems and uses less power than 200W as well as being the cheapest of all multi output SMPS systems.
      Let's have a look at how it operates…
      a. Converts AC input into DC (HOT) (rectifies to DS801 before smoothing to CS801)
      b. The converted DC voltage is high, especially compared to ground, so touching it will cause electric shock. Use T801S (Trans) to insulate the secondary voltage and take advantage of the PWM operations of T801S and IC801S to induce it.
      c. The secondary induced voltage is 66KHz square wave power, which goes through the smoothing cap (CS822) to be generated in the standby 5V.
      d. Multi power also operates the same way.

4. Input&Output voltage

1) Input voltage
- Aemrica(AC120V) - OPTION
- Korea(AC220V) - OPTION
- The others(AC100V~AC240V) - OPTION

2) Output voltage
- D12V / 2.5A - 12V , 3.3V , 1.8V : For signal processing
- A6.5V / 1A - For driving the tuner
- S14.5V / 4A -For driving sound processor
- T30V / 5mA - For driving the tuner
- A65V / 30mA - For driving the actuator

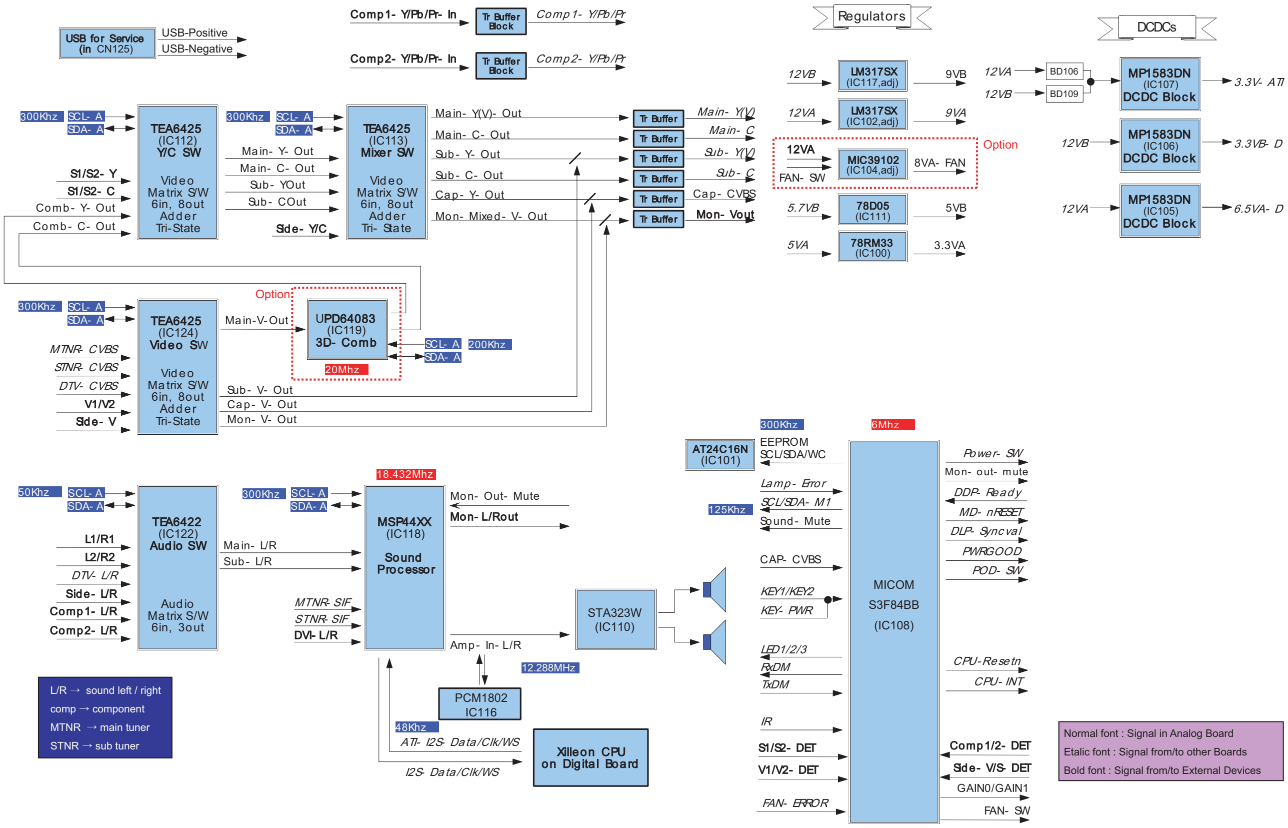
13-2-2 Digital Block Description


EPLD
1HD
8bit Processing
Comp 1 YPb,Pr
Comp 2 YPb,Pr
ADC #1
ADV7401
Ext. Video In #A
K4D551638D
K4D551638D
Y/C
CVBS
RxDM
TxDM
SP3232
Anynet Service
RxDM
TxDM
MICOM
IR
Ext. Video In #B
CVBS
Flash (Nand)
RF-Splitter
CABLE
ATSC NIM TUNER
TS_DATA[0:7]
TS #A
Flash (Nor)
TUNER CONTROL(I2C)
TS_CLK, SYNC
K4S643232
AIR
X226B
TS #B
YPbPr
8bit
HS, VS
CLK
DNIe Pro
LVDS
TS #C
YCbCr 24bit,HS,VS
Buff
I2S to MSP 4440
TMDS
HDMI Rx
HDMI I2S
I2S port

- ADV7401: Analog YPBPR, CVBS, Y/C(SUPER), Input MUXING and Video Decoding
- X226: CPU, + MPEG Decoder, Audio signals transferred to MSP of the analog board by I2S
- DNIE: Uses a noise-filtering and picture quality improvement algorithm to implement natural colors.
- HDMI: Receives one input signal and transfers it to X226 in 24 bits.
- Others: Anynet implementation, Optical Power Port, USB Update Port (not available for MP3)

The L3HD or L6HD digital board contains two HD tuners to implement analog as well as digital signals from air/cable broadcasting. It decodes Y PB PR CVBS, Y/C(SUPER) and HDMI inputs using ADV7401 and silicon chips, which are transferred to X226 (ATI), a combination of the main CPU and the MPEG decoder.
All video/audio inputs are transferred to X226 for digital processing and all video output goes through DNIe to the DLP DMD board.
Audio signals are transferred to the MSP chip of the analog board using I2S and are emitted through the speaker.
It also has an Anynet port, a 5.1 channel optical port and a USB port for a S/W update.

13-2-3 Analog Block Description


USB for Service (in CN125)
USB-Positive
USB-Negative
Comp1- Y/Pb/Pr- In
Tr Buffer Block
Comp1- Y/Pb/Pr
Comp2- Y/Pb/Pr- In
Tr Buffer Block
Comp2- Y/Pb/Pr
Regulators
DCDCs
300Khz
SCL- A
SDA- A
TEA6425 (IC112) Y/C SW
Video Matrix S/W 6in, 8out Adder Tri-State
S1/S2- Y
S1/S2- C
Comb- Y- Out
Comb- C- Out
Main- Y- Out
Main- C- Out
Sub- YOut
Sub- COut
Side- Y/C
TEA6425 (IC113) Mixer SW
Video Matrix S/W 6in, 8out Adder Tri- State
Main- Y(V)- Out
Main- C- Out
Sub- Y- Out
Sub- C- Out
Cap- Y- Out
Mon- Mixed- V- Out
Tr Buffer
Main- Y(V)
Main- C
Sub- Y(V)
Sub- C
Cap- CVBS
Mon- Vout
12VB
LM317SX (IC117,adj)
9VB
12VA
LM317SX (IC102,adj)
9VA
12VA
MIC39102 (IC104,adj)
8VA- FAN
FAN- SW
Option
5.7VB
78D05 (IC111)
5VB
5VA
78RM33 (IC100)
3.3VA
12VA
12VB
BD106
BD109
MP1583DN (IC107) DCDC Block
3.3V- ATI
12VB
MP1583DN (IC106) DCDC Block
3.3VB- D
12VA
MP1583DN (IC105) DCDC Block
6.5VA- D
300Khz
SCL- A
SDA- A
TEA6425 (IC124) Video SW
Video Matrix S/W 6in, 8out Adder Tri-State
MTNR- CVBS
STNR- CVBS
DTV- CVBS
V1/V2
Side- V
Option
Main-V-Out
UPD64083 (IC119) 3D- Comb
20Mhz
SCL- A
SDA- A
200Khz
Sub- V- Out
Cap- V- Out
Mon- V- Out
50Khz
SCL- A
SDA- A
TEA6422 (IC122) Audio SW
Audio Matrix S/W 6in, 3out
L1/R1
L2/R2
DTV- L/R
Side- L/R
Comp1- L/R
Comp2- L/R
Main- L/R
Sub- L/R
300Khz
SCL- A
SDA- A
18.432Mhz
MSP44XX (IC118) Sound Processor
MTNR- SIF
STNR- SIF
DVI- L/R
Mon- Out- Mute
Mon- L/Rout
Amp- In- L/R
STA323W (IC110)
12.288MHz
PCM1802 IC116
48Khz
ATI- I2S- Data/Clk/WS
I2S- Data/Clk/WS
Xilleon CPU on Digital Board
L/R → sound left / right
comp → component
MTNR → main tuner
STNR → sub tuner
AT24C16N (IC101)
300Khz
EEPROM SCL/SDA/WC
6Mhz
Lamp- Error
SCL/SDA- M1
125Khz
Sound- Mute
CAP- CVBS
KEY1/KEY2
KEY- PWR
LED1/2/3
RxDM
TxDM
IR
S1/S2- DET
V1/V2- DET
FAN- ERROR
MICOM S3F84BB (IC108)
Power- SW
Mon- out- mute
DDP- Ready
MD- nRESET
DLP- Syncval
PWRGOOD
POD- SW
CPU- Resetn
CPU- INT
Comp1/2- DET
Side- V/S- DET
GAIN0/GAIN1
FAN- SW
Normal font : Signal in Analog Board
Etalic font : Signal from/to other Boards
Bold font : Signal from/to External Devices

- Analog Video Signal Processing
- Select Sound/Video

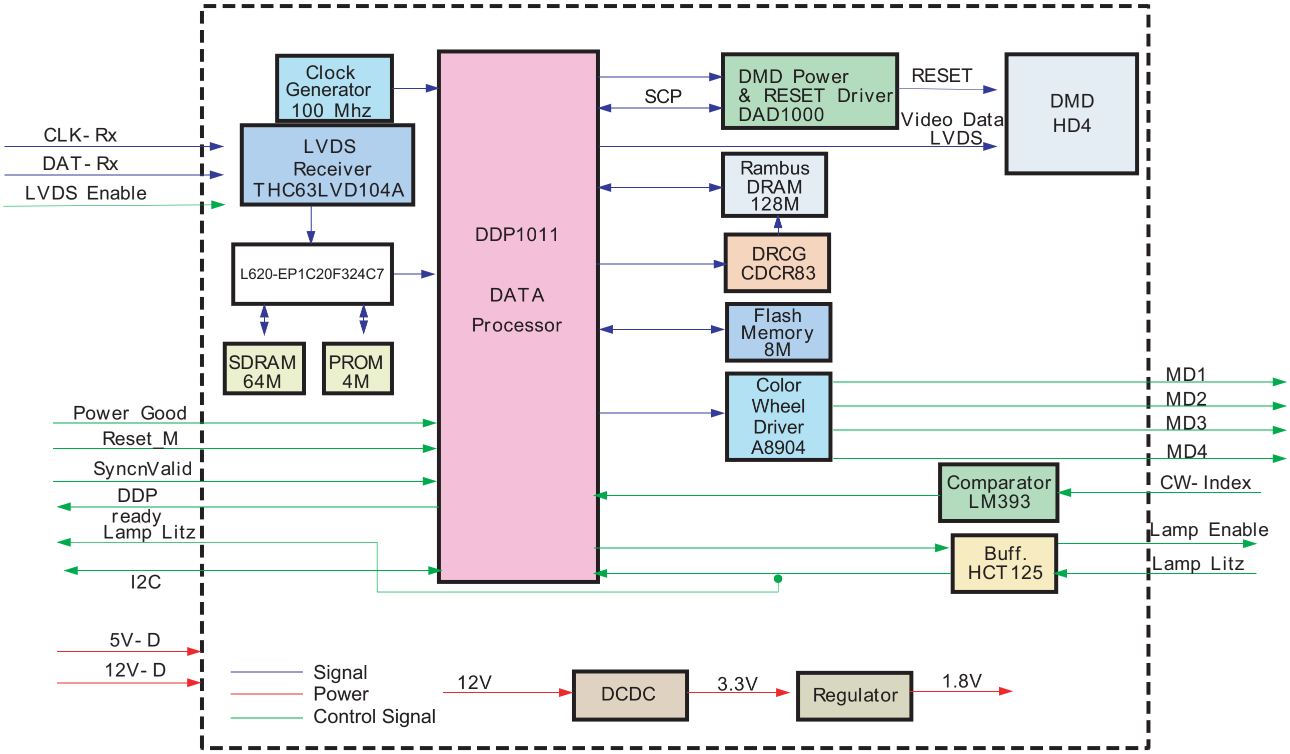
  One is selected from multiple inputs by the switching ID. MICOM decides which port is used for output.

  For broadcasting signals, sub-outputs are transferred in CVBS and, the main outputs in Y/C through the 3D Comb, to the digital board.

  Sound signals are selected by the switching IC, of which only one input is transferred to the speaker.
- Detection Signal Flow

  When each port is connected to a signal cable, the detection signal is "low" and can be checked by Micom scanning.

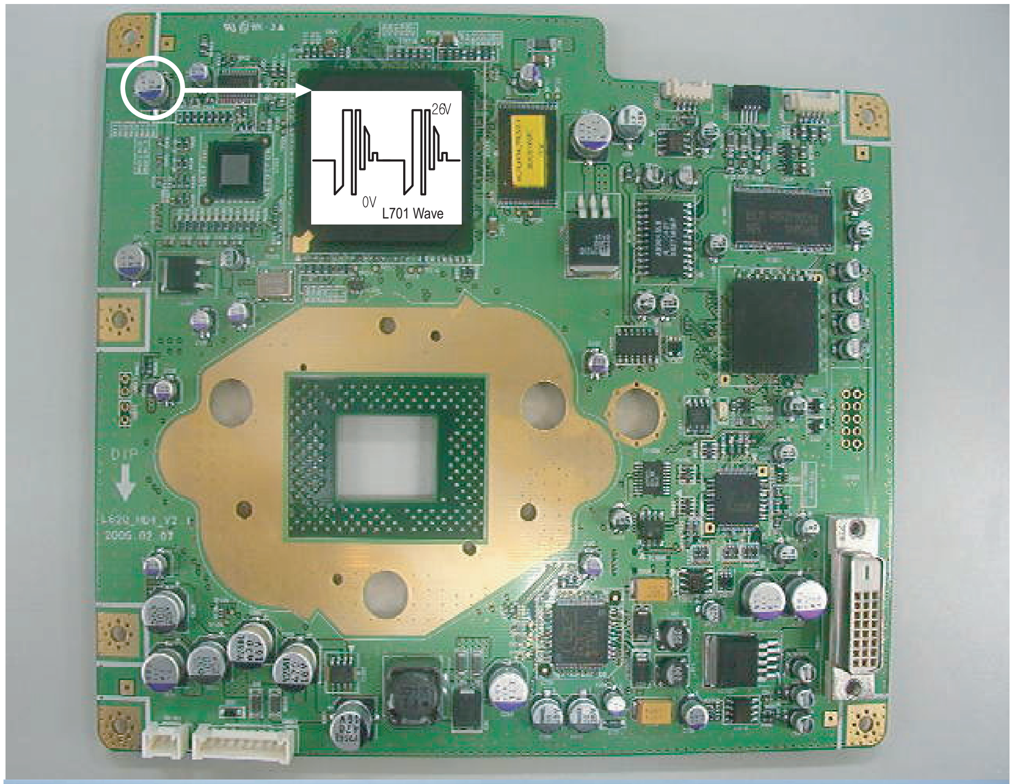
13-2-4 DMD Block Description

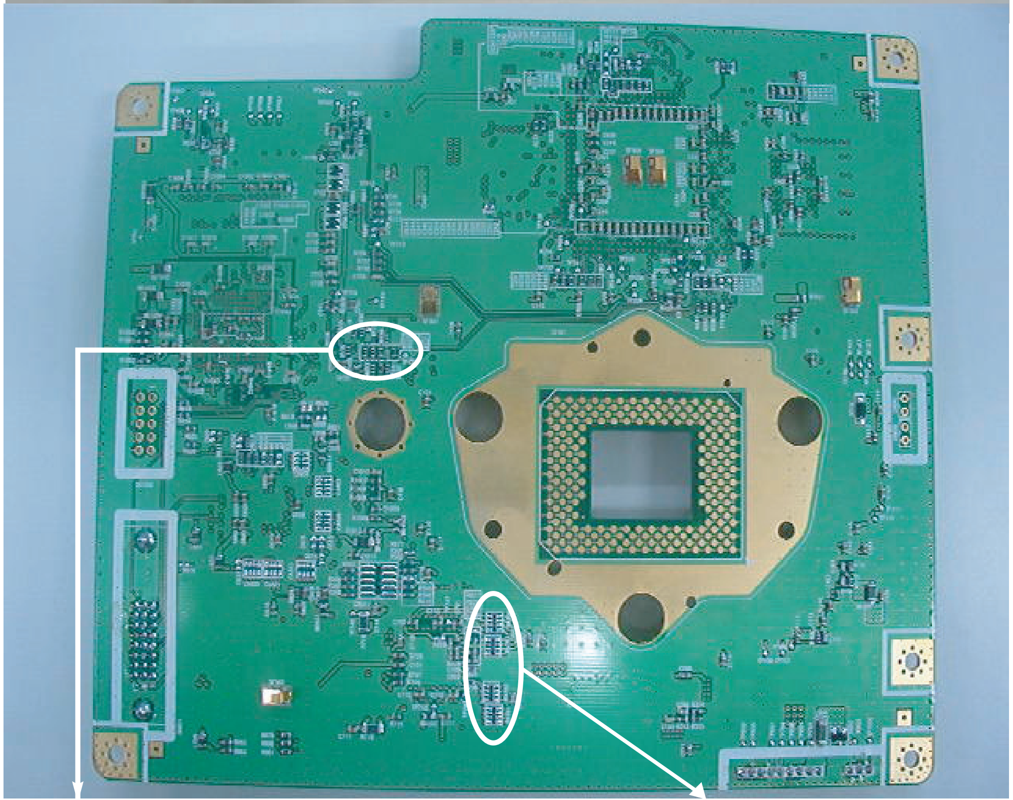

Clock Generator 100 Mhz
LVDS Receiver THC63LVD104A
CLK- Rx
DAT- Rx
LVDS Enable
L620-EP1C20F324C7
SDRAM 64M
PROM 4M
DDP1011 DATA Processor
SCP
DMD Power & RESET Driver DAD1000
RESET
Video Data LVDS
DMD HD4
Rambus DRAM 128M
DRCG CDCR83
Flash Memory 8M
Color Wheel Driver A8904
MD1
MD2
MD3
MD4
Comparator LM393
CW- Index
Buff. HCT125
Lamp Enable
Lamp Litz
Power Good
Reset_M
SyncnValid
DDP ready
Lamp Litz
I2C
5V- D
12V- D
Signal
Power
Control Signal
12V
DCDC
3.3V
Regulator
1.8V

- Controls the lamp (ON/OFF)
- Drives the color wheel motor
- Drives the panel
- Controls the sensors

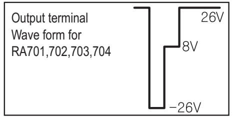
13-3 New Circuit Description

13-3-1 Output Voltage States of the DMD Board Parts


26V
0V
L701 Wave



Loc.	Characteristics	
R534	LAMP EN	High from DDP1010
R531	LAMP LITZ	High (5V) before the lamp turns on. Low (0V) when the lamp turns on.

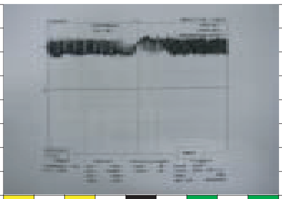

Output terminal
Wave form for
RA701,702,703,704
26V
8V
−26V

13-3-2 DMD Panel Pin Terminal Characteristics Diagram

※ Remove the heat sink attached to the DMD Board and tighten the screws in four places and then inspect the characteristics of each pin terminal.

	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
A				■		V		V		DA	N6	DA	N4	V		DA	N2	DA	P0	V		G		G		■		V		V		G		G		■		V		N	A
B			V						■		DA	P6	DA	P4	■		DA	P2	DA	N0	■		■		■		■		■		G				C		■		■		B
C		■		■		■		G		■		DA	P7	DA	P5	■		DA	N3	DA	N1	■		■		■		■		G				■		■		■		V	C
D	DA	N8	DA	P8	C		C		■		DA	N7	DA	N5	■		DA	P3	DA	P1	■		■		■		G				■						■		V		D
E		DA	N10	DA	P10	DA	P9	DA	N9																									■		■		■		V	E
F	V		■		■		■																										■		■		V		V2		F
G		DA	N12	DA	P12	DA	P11	DA	N11																									■		■		■		V2	G
H	V2		V2		DA	P13	DA	N13																									■		■		■		V2		H
J		V		■		■		■																										■		■		V		V2	J
K	DA	P14	DA	N14	DA	P15	DA	N15																									■		■				V		K
L		DB	P14	DB	N14	DB	P15	DB	N15																									■				ME		V	L
M	V		■		■		■																										■		14		11		V2		M
N		V2		V2		DB	P13	DB	N13																									10		5		1		V2	N
P	DB	N10	DB	P10	DB	P11	DB	N11																									■		4		V		V2		P
R		V		■		■		■																										■		■		V		V2	R
T	DB	N10	DB	P10	DB	P9	DB	N9																									■		■		■		V		T
U		DB	N8	DB	P8					■		DB	N7	DB	N5	■		DB	P3	DB	P1	■		6		3		T0		G						0		■		V	U
V	■		■		■		EV		■		DB	P7	DB	P5	■		DB	N3	DB	N1	■		13		9		■				G		■				■		V		V
W		V		C		C		■		DB	P6	DB	N4	■		DB	P2	DB	N0	■		12		8		■		7		T2		G		C		■		V			W
Y			■		V		V		DB	N6	DB	P4	V		DB	N2	DB	P0	V						■		V		2		T1		G		■		V				Y
	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

The vertical lines, which may occur due to improper connections between the panel and the PCB, occur with intervals of 50 inches(26mm). If vertical lines occur with intervals of more than 26mms, it indicates a failure of the DDP1011 IC itself. If they occur with intervals of less than 26mm, it means that more than two pins have bad connections.



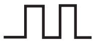
DA,DB output wave
[Screen:WHITE]

Pin Name	Description	Pin Name	Description
V	Voltage : 3.3V	T	Test Point
V2	VCC2 : 8V	ME	Mirror Bias Extra
DA	A Channel Data Bus [When measured, there should be a waveform]	C	Clock
DB	B Channel Data Bus [When measured, there should be a waveform]	P#	A,B Channel Positive
NO.	MBRST# (Mirror Bias Rest) 26V	N#	A,B Channel Negative
G	The part from the present position to the GND (The black part is also a GND.)		

13-3-3 Description of Terminal Characteristics

Pin Name	Description
SCTRL_BN/P	B channel LVDS serial control
DCLK_BN/P	B channel LVDS CLOCK
SCPDI	SERIAL CONTROL DATA INPUT
SCPDO	SERIAL CONTROL DATA OUTPUT
SCPENB	SERIAL CONTROL ENABLE
SCPCK	SERIAL CONTROL CLOCK
DMD RESETB	DMD LOGIC RESET
MBRST(14:0)	MIRROR BIAS RESET
MBRST_EXTRA	UNUSED MIRROR BIAS RESET
SCR_CLR	TEST CLEAR PINS(NORMAL GND)
READOUTA(1:0)	A-CHANNEL SERIAL DATA OUT DURING SPAM READ TEST OPERATION
READOUTB(1:0)	B-CHANNEL SERIAL DATA OUT DURING SPAM READ TEST OPERATION
TP(2:0)	MANUFACTORING TEST POINT(NO CONNECTED DURING NORMAL CPERATION)
RSV_A(4:0)/RSV_B(4:0)	RESERVED PINS(NORMAL:GND)
EVCC	REFERENCE VOLTAGE DURING SPAM READ TEST OPERATION(NORMAL GND)
VCC2	MIRROR ELECTRODE VOLTAGE(7.3V)
VCC	LOGIC SUPPLY
VSS	LOGIC GROUND

13-3-4 Engine Failure Inspection Flow Chart for the DMD Board

No.	Description	Key Point	Remark
1	1) When the power cord is plugged in, 2) DC 330V is automatically supplied to the ballast.	Check whether the DC 330V power is supplied to the ballast.	
2	1) When the power key is pressed via the remote control, the micom of the analog board outputs high (5V) PWR signals. 2) The power board operates normally. 5V and 12V are supplied to the DMD CN602 terminal.	Check whether 5V and 12V are supplied to the CN602 terminal.	＊12V must be supplied to operate the motor.
3	1) The MTR Reset signal is supplied to the TP713 terminal of the motor IC704 from the micom on the digital board and then the motor starts to drive. 2) If the color wheel rotates for a certain time and then stops, check whether the color wheel sensor is normal. (Check the waveform on the No.2 terminal below CN502.) 	After the set is powered on, check whether 5V is detected on pin No.20 of IC704. → After a while, the sound generated by the rotating color wheel is heard.	＊If 5V is not detected, the motor will not operate.
4	1) Check whether the signal (SCI: START CONTROL INPUT) that turns on lamp #2 of CN504 on the DMD board is high (5V).	Check whether CN504 #2 signal is 5V.	＊When SCI is high (5V), the lamp litz of CN504 is low (0V). ＊CN504 #2 terminal voltage changes to pulse wave form 14 seconds after (for 50 inch TV) the time that the voltage is 5V. * When about 4 seconds have passed after changing to pulse waveform, the screens are displayed on the set.
5	1) Method for checking whether the DDP1011 IC RESET is normal.	If the voltage R204 is 3V, it is normal.	

13-3-5 IC Line Up

1. Power Board

Items	Descriptions	Remarks
Main SMPS	FS7M0880, Fairchild	IC-PWM Controller ; Main Power
Stand-by SMPS [America]	KA1M0565, Fairchild	IC-PWM Controller ; Stand-by Power
Stand-by SMPS [Korea]	KA5M0165, Fairchild	IC-PWM Controller ; Stand-by Power

2. Digital Board

Items	Descriptions	Remarks
MPEG2 Decoder	X226B	CPU(MIPS), TS Demux, MPEG2 Decoder, Format converter, Deinterlacer, Scaler, USB
analog Decoder, ADC	ADV7401	Video Processor, ADC
HDMI Receiver	Sil9011	Digital Receiver for HDMI with HDCP
COMPONENT S/W	BA7657	COMPONENT S/W, H/V Sync S/W
Video Enhance	SDP32 SAMSUNG	RGB Processor
Program ROM	AT49BV x 2	32M(1M x 16) x 2, Nor-Type Flash Memory
Frame Buffer	192MB DDR, 64M ,Samsung	Frame Memory
LVDS Transmitter	THC63LVDM83R, THINE DTC34LM85A, DOESTEK	DTC34LM85A, DOESTEK
IEEE1394	JEDI(TSB43DA42A)	IEEE1394 Interface
Gemstar EPG	Yamu MICOM(3P8OB5X)	IR Blaster

3. Analog Board

Items	Descriptions	Remarks
Video Switch	TEA6425, SGS-Thomson	Video Switch IC for TV *3
Audio Switch	TEA6422, SGS-Thomson	Audio Switch IC for TV
3D-Comb	uD64083, NEC	3 Dimensional Y/C Separation LSI
Sound Module	MSP4440, Micronas	Multistandard Sound Processor With TruSorround XT
Sound AMP	TPA3001D, TI	1 Channel Digital Audio Power Amplifier *2
Micom	SDA55xx, Micronas	Micro Controller

4. DMD Board

Items	Descriptions	Remarks
DMD Driver	DDP1011, TI	DLP Data Processor
Reset, Power	DAD1000, TI	DMD Power and Reset Driver
Motor Controller	A8904, Allegro	12V VCM/Spindle Pre-Driver
Frame Buffer	K4R271669, Samsung	128M(246K x 16 x 32B), Rambus DRAM
Clock Generator	CDCR83, TI	Direct Rambus Clock Generator
Program ROM	M29W800BT, ST	8M(1M x 8 or 512K x 16), Flash Memory
Actuator Driver	Cyclone, Altera	Frame Extractor 60Hz(1 frame) → 120Hz(1/2 frame)
LVDS Receiver	THC63LVD104, Thine	LVDS Digital Receiver, 75MHz

14. Reference Information

14-1 Other issues related to other products

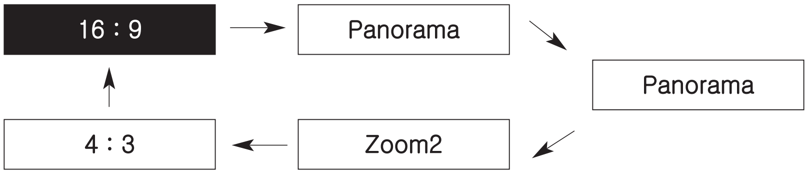
Problem	Descriptions
A fixed screen can cause permanent damage to the TV Braun tube.	Braun, PDP and LCD TVs can all be damaged. When a still image is displayed in a sequence, this can leave stains or after-images due to the characteristics of the panel. However, the DLP TV has the advantage that no stains or after-images are left on the screen. The DLP TV has mirror pixels on the DMD panel that project the beam onto the screen, in which the mirror is a digital representation of 0s and 1s, leaving no trace of light. The mirror returns to a blank state so that no stains or after-images are left.
Confusion between the ANYNET Port and the SERVICE Jack Port	The SAMSUNG SKY500N model has both an ANYNET port and a SERVICE jack port. Because the shape of the ANYNET port on the DLP TV is the same as that of the SERVICE jack port of the SKY500N, it fails to turn the TV off after a connection has been reported. The ANYNET port uses an RS232 port called Phone Jack, and the SERVICE jack port also uses the RS232 port. However, you must not connect the SERVICE port and the ANYNET port. Check if the port is the ANYNET port or the SERVICE port before connecting the port. Even if the TV cannot be turned on after connecting, the TV will turn on if you disconnect the connection.
Length of DVI Cable / PC RGB Cable	- A too long DVI cable may cause a malfunction or degradation of the visual quality due to an attenuation of the signal. There is no recommendation for the cable length at present. In general, although a cable length of up to 5 meters should work, please check if video is properly displayed on the screen after connecting. If you think the length of the cable is longer than for normal use, check the visual quality of the video on the screen and shorten the length, if necessary. - This also applies to the PC RGB (D-Sub) cable. When the length of the cable is longer than for normal use, video may not be displayed on the screen. In this case, shorten the cable length.
When a digitally distributed TV user receives HD-rated broadcasts:	The digital distributed TV (Ready Technique) can render HD sources as HD-rated. However, you need to install a set-top box for this purpose. The digital TV alone cannot render HD broadcasting as HD-rated. Install the formal set-top box for HD broadcasts.
When a digital distributed TV user selects normal size (4:3) to receive SD-rated digita broadcasts:	The digitally distributed TV (Ready Technique) renders any broadcasting service as SD-rated. However, when connected to a set-top box, the digital TV renders HD broadcasts as HD-rated and renders SD as SD-rated. The screen size is scaled to 4:3.
When a digitally built-in TV user receives SD (air) broadcasting:	The digitally integrated TV ("built-in" type) renders SD broadcasting as SD-rated. This can be understood easily. Even a high-resolution TV cannot improve a low resolution picture into high quality. In contrast, an SD-rated TV cannot represent HD broadcasting as HD because the resolution of the TV is lower than the original.
When selecting a picture size of 4:3 in connection with a computer or a multimedia device:	The representation capability of SD or HD-rated depend entirely on the TV set. The HD TV can render HD broadcasting as HD-rated only when it receives HD sources. In the meantime, the HD TV renders SD as SD-rated when it receives SD sources. The picture size has nothing to do with the resolution; TV models like SVP-XXL3HD or SVP-XXL6HD have a size adjustment feature to 16:9, 4:3, Panorama, Zoom1, Zoom2 and Auto Wide. This is about the aspect ratio of the top and bottom boundaries to the overall screen and users can select their preference.

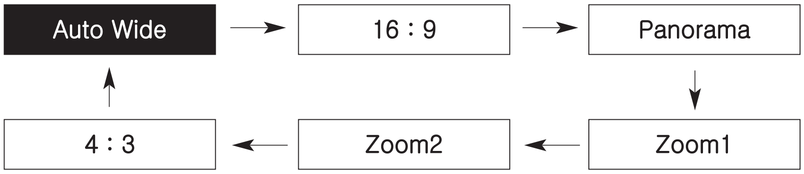
■ SD/HD broadcasts and the TV's display capability are related

1. A digital broadcast should be transmitted in wide screen (an aspect ratio of 16:9) HD. If the broadcasting station converts a conventional program created in normal screen (aspect ratio of 4:3) into a digital signal and broadcasts the signal, the left and right of the picture will not be displayed.
   This symptom also appears in other manufacturer's TV's. The three appliance companies are trying to resolve the problem through the Ministry of Information and Communication.
   * When watching an SD (normal) broadcast through a Digital (Wide) TV (480P normal broadcast)
   * When watching an SD (normal) broadcast through a Digital Ready (Wide) TV (Using a set-top-box)
   * When watching an analog (normal) broadcast through a wide TV
     (When watching a broadcast after changing the aspect ratio of the TV from 16:9 (wide screen) to 4:3)

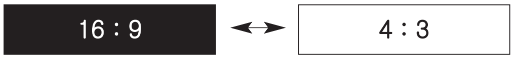
2. When watching a DVD title or video tape in wide screen (21:9) through a wide (16:9) TV, watching video from a computer or game console by selecting the aspect ratio to 4:3, or watching video from a DVD, VCR, computer or game console through a wide TV by selecting the aspect ratio to normal (4:3) or wide (21:9), the left and right, or top and bottom of the picture will not be displayed.
   This symptom appears in other manufacturer's TV's. The three appliance companies are trying to resolve the problem through the Ministry of Information and Communication.

■ Changing the Order of the Picture Size for 16:9 Display Devices





■ Changing the Order of the Picture Size for DTV 1080i/720p Sources



■ Restrictions

1. When you want to change the picture size in PIP 'ON', you must turn the PIP off before changing the size.
   However, you can change the main picture size even in PIP ON for products with no restrictions.

2. When the picture size is not Normal (4:3 for 4:3 display devices, 16:9 for 16:9 display devices) and you turn PIP on, the picture size is changed to Normal.
   However, you can turn PIP on without changing the picture size for products with no restrictions.

3. In the OSD notation for the picture size, 16:9 is represented as "Wide" instead of "16:9" for devices other than with 16:9 displays.
   Ex: For LCD 15:9 devices, "Wide" is displayed on the OSD instead of "16:9".

4. The picture size can be changed even in the blue screen.
   However, the picture size should be controlled by the product specifications if the change is impossible due to hardware restrictions.

14-2 Technical Terms

PIP (Picture In Picture)
A feature to enable two video images being displayed on one screen at the same time. For instance, you can see the TV channel and the video image at the same time.

Digital Broadcasting
The ATSC (Advanced Television Systems Committee) signals that the station digitalizes before transferring the audio/video signals.

Mono
A sound system that transmits voice signals in only one channel. It is hard to experience a 3D effect but can be run with one speaker.

LNA (Low Noise Amplifier)
This uses satellite technologies to amplify weak signals for improved quality even in poor reception areas.

Stereo
A sound system that transmits voice signals in two channels This implements 3D effects by transmitting to both speakers (left/right).

Analog Broadcasting
The conventional system in which the station transfers the audio/video signals in NTSC formats.

Antenna Terminal
A terminal which the TV antenna is connected to. A round coaxial cable is connected to this terminal, which is usually used to watch air broadcasts.

English Captions (Subtitle)
A feature to provide English captions or character information services, which the user can use to study English using AFKN broadcasting or video tapes marked with "CC".

Audio/Video Terminal
The old 3- or 4-channel TV with no AV terminal has a low quality issue for video tape. The problem can be resolved using an A/V terminal that separates the audio and video signals. The video terminal is in yellow; the audio terminal is divided in two, white for left and red for right.

External Source
This includes sources from the video recorder, DTV set-top box and DVD player, (anything but the TV).

DVI-I Cable
One of the DVI cables that can transfer both digital and analog signals.

Satellite Broadcasting
This uses a satellite system to support a maximum of 100 channels including air services and provides high quality pictures anywhere in the country, even in poor reception areas. A set-top box (unbundled) is required to watch satellite broadcasting.

Closed Broadcasting
Other than VHF and UHF, this includes movies, entertainment and educational programs broadcast by hotels or schools. This is different from cable broadcasting.

Multiplexing
Two languages are provided at the same time when broadcasting foreign movies, dramas and news programs. You can choose either a native or foreign language, or choose both at the same time.

Component Terminal (Green, Blue, Red)
This provides maximum quality by dividing the contrast signals before transferring.

Cable Broadcasting
Compared to air broadcasting, it uses the cable system to transfer the signals. You should subscribe to a local cable broadcasting company and install a separate receiver.

Tuner
A device used to select a particular frequency from the TV set or the radio receiver.

Anynet
An AV networking system of Samsung's various AV devices, which enables the user to conveniently control AV devices using the TV.

DVD (Digital Versatile Disc)
This is a CD-sized, high storage disk that can store multimedia data including videos, games and audio applications using MPEG-2 compression technology.

DVI (Digital Visual Interface) Terminal
This is a digital signaling standard.
This uses TMDS to reduce the signal loss rate for sharper images.

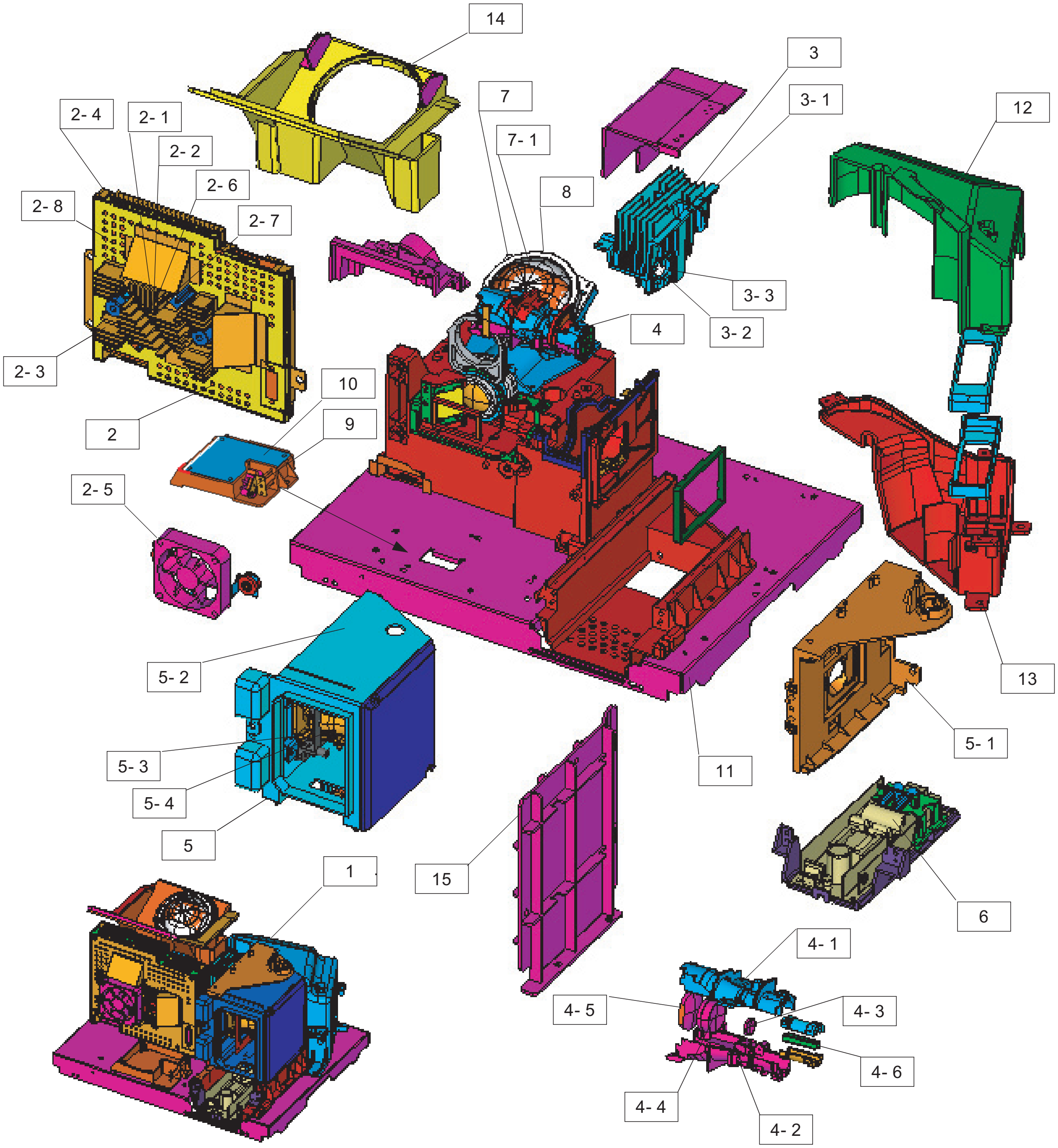
DVI-D Cable
One of the DVI cables that can only transfer digital signals.

HDMI (High Definition Multimedia Interface)
An interface into which the digital signals as well as the high quality image data can be connected with one cable. There is no need to compress the bit rate.

S-video Terminal
This is, called "Super-video", divided into video and color signals for sharper image display.

VHF/UHF
VHF refers to the 2 - 13 channel system; UHF indicates the 14 - 69 channel system.

14-3 L6 Engine Ass'y


14
3
3- 1
12
7
7- 1
8
2- 4
2- 1
2- 2
2- 6
2- 7
2- 8
4
3- 3
3- 2
2- 3
10
9
2
2- 5
5- 2
13
5- 1
5- 3
5- 4
11
5
6
1
15
4- 1
4- 5
4- 3
4- 6
4- 4
4- 2

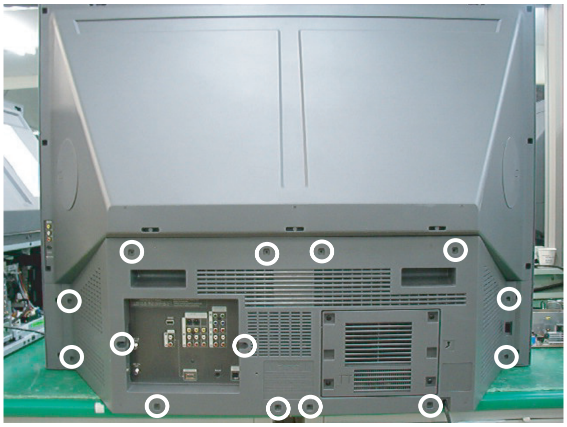
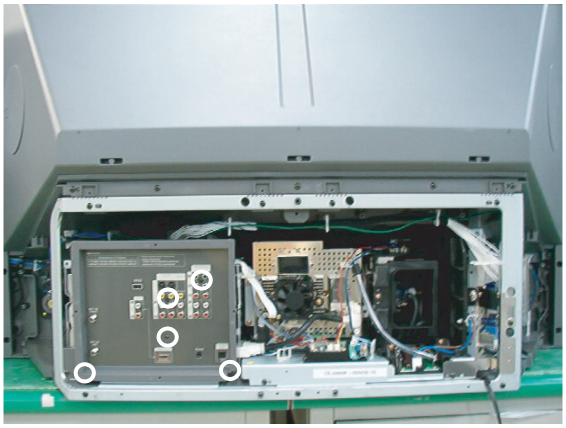
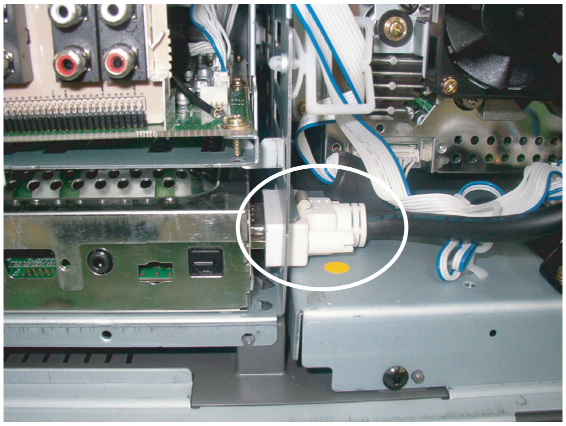
L6 Engine Exploded View List

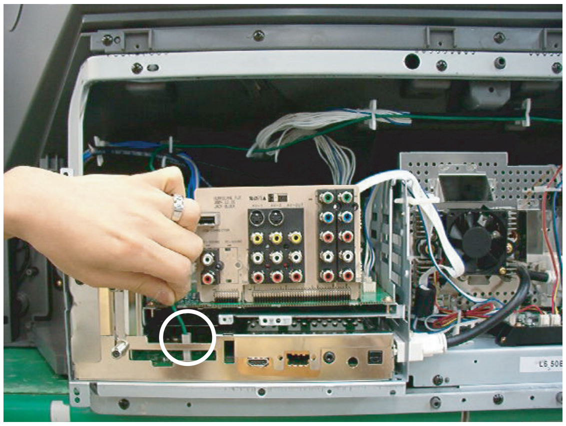
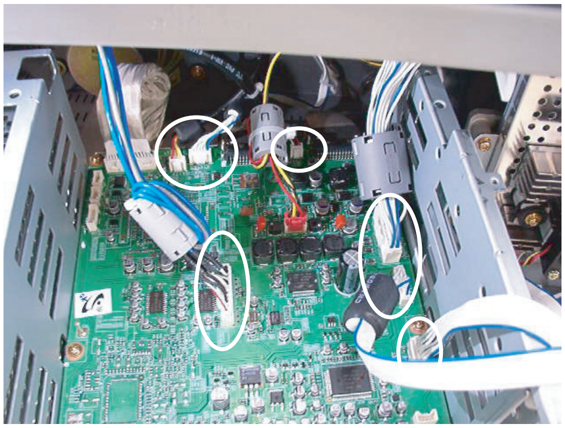
No.	Description	Specification	Q'ty
1	ASSY ENGINE P-DLP	42L6,PHILIPS 120W,SVC ENGINE	1
2	ASSY DMD BOARD P	L6 Philips,DMD BOARD,SERVICE	1
2-1	HOLDER-CLAMP DMD	SVP-50L6HR,MG,T2.5,D/C	1
2-2	BRACKET-PANEL	SVP-50L6HR,AL D/C,T3.0	1
2-3	BRACKET-COOLER	SVP-50L6HR,AL,T3.0	1
2-4	SHIELD CASE-DMD(F)	SVP-50L6HR,SECC,T1.0	1
2-5	FAN-DC	AD0612LB-D72GL,P.B.T UL94-Vo,Wire	1
2-6	DLP	1280x720D/HD4,FTP,DMD TYPE A/NON ape	1
2-7	HOLDER-SOCKET DMD	LCP,T3.0,BLACK,203pin	1
2-8	ASSY PCB S-DMD	L620,HURRICANE	1
3	ASSY COLOR WHEEL P	L6,SERVICE	1
3-1	HOLDER-COLOR WHEEL	SVP-50L6HR,MG,T2.5,D/	1
3-2	GLASS-COLOR WHEEL	65mm NDF,FLOAT GLASS,T	1
3-3	GLASS-UV FILTER	HURRICANE,GLASS,NTR,16.5	1
4	ASSY LENS P-ILLUMINATION	L6,SERVICE	1
4-1	HOLDER-L/T(TOP)	SVP-50L6HR,PPS G/F30,T2.	1
4-2	HOLDER-L/T(BOT)	SVP-50L6HR,PPS G/F30	1
4-3	LENS-ILL E1	HURRICANE,NBFD13,NTR,R1=-28.	1
4-4	LENS-ILL E2/E3	HURRICANE,FD60,BACD5,NTR,	1
4-5	LENS-ILL E4	HURRICANE,BACED5,NTR,R1=54.5	1
4-6	MIRROR-LIGHT TUNNEL	HURRICANE,GLASS,3.5x	1
5	ASSY LAMP P	L6 NEW,PHILIPS 120W,E22	1
5-1	HOUSING-LAMP,BOTTOM 23	SVP-50L3HR,AL D/	1
5-2	HOLDER-HOUSING LAMP	SVP-50L6HR,PPS G/F30	1
5-3	HOLDER-LAMP F	DLP L3,AL D/C	1
5-4	LAMP	UHP 100W/120W 1.0,E22,65*70	1
6	LAMP-BALLAST	EUC 120 P/H11,120W,130mm ca	1
7	LENS-P/J ASSY	HURRICANE,GLASS,NTR,FOV=93	1
7-1	LENS-PROJECTION	PMMA,NTR,R1:114.50, R2:27.754,T4,ASP LENS	1
8	GLASS-ACTUATOR	MIRROR,T3.1,27,24,VCM	1
9	ASSY MISC-DETECTOR S/W	HLP5063WX/XAA,L62	1
10	ASSY PCB S-DETECTOR B/D	L620,HURRICANE	1
11	BRACKET-ENGINE BASE	SVP-50L6HR,SECC,T1.6	1
12	COVER-DUCT TOP	SVP-50L6HR,PC G/F20,T3.0	1
13	COVER-DUCT BOT	SVP-50L6HR,PC G/F20,T3.0	1
14	COVER-P/J LENS	SVP-50LLHR,ABS,T2.5	1
15	COVER-LAMP	HURRICANE 720P,PC	1

12. Disassembly & Reassembly

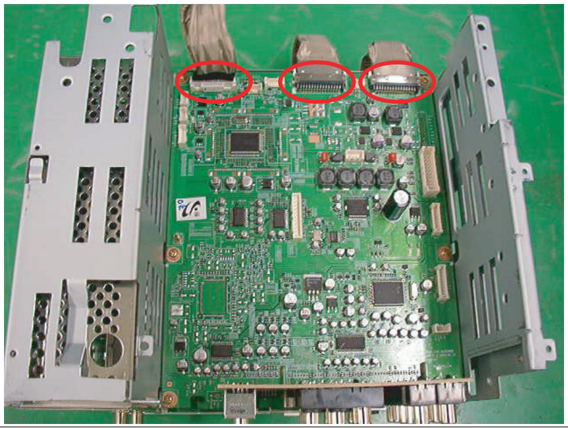
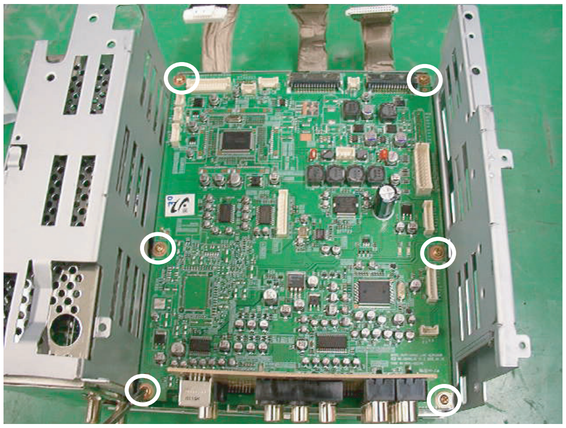
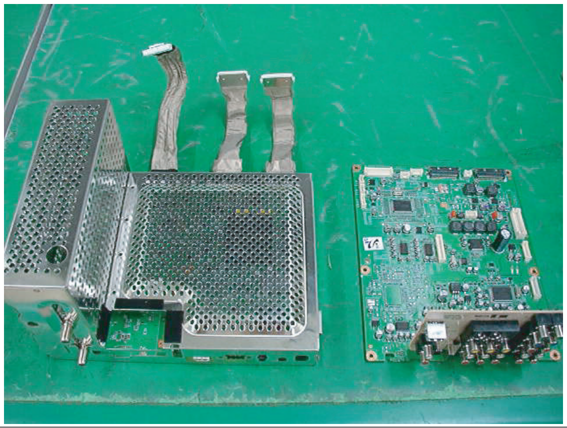
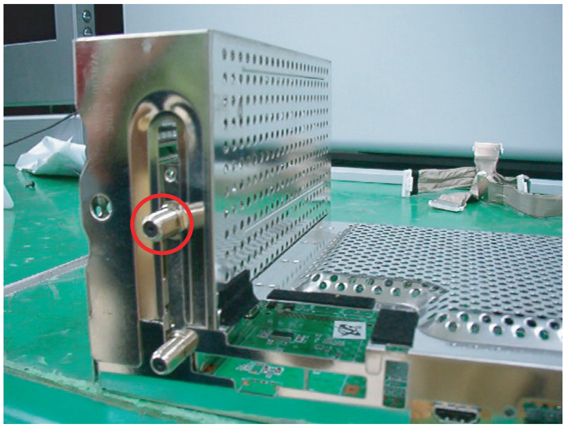
12-1 Overhaul Disassembly & Reassembly

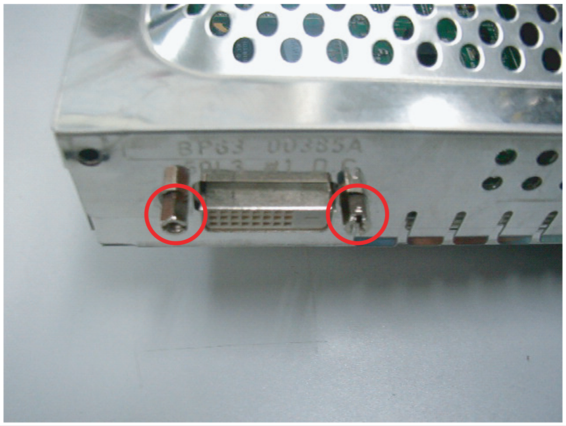
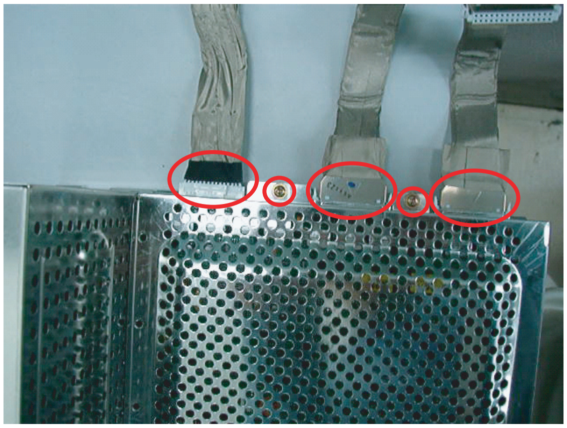
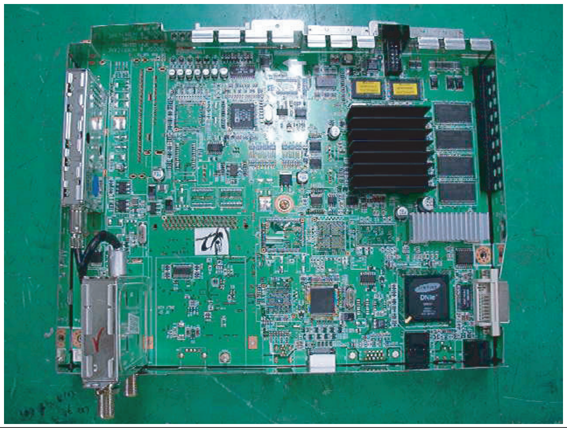
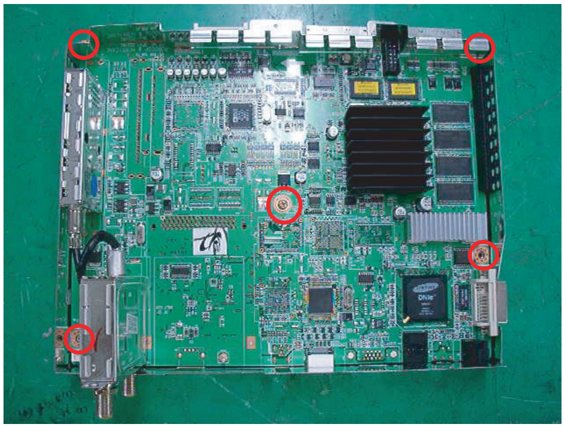
12-1-1 Separation of the back cover and the chassis

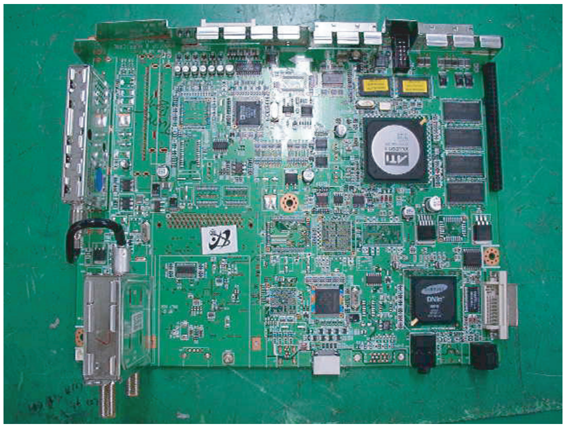
Part Name	Description	Description Photo
Back Cover	① Remove 14 screws to remove the back bottom cover. : TH,B,M4.L15,BLK,SWRCH18A	
Terminal Board	① Loosen and remove the 5 screws on the terminal board and jack. * The 3 Terminal Board Screws. : TH,B,M4.L15,BLK,SWRCH18A * The 2 Jack Screws. : RH,B,M4,L15,ZPC(BLK),SWRCH18	
Holder Chassis	① Separate the DVI cable. ⚠ Notice: The DVI screw is made of soft plastic and may easily break when applying excessive force through a screw driver. Ensure that extreme caution is taken when loosening the screw.	

Part Name	Description	Description Photo
Holder Chassis	① Seperate the Gt-wires. ② Seperate the cables.	 

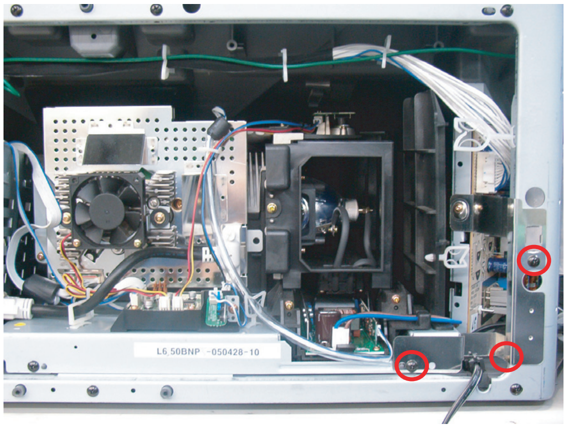
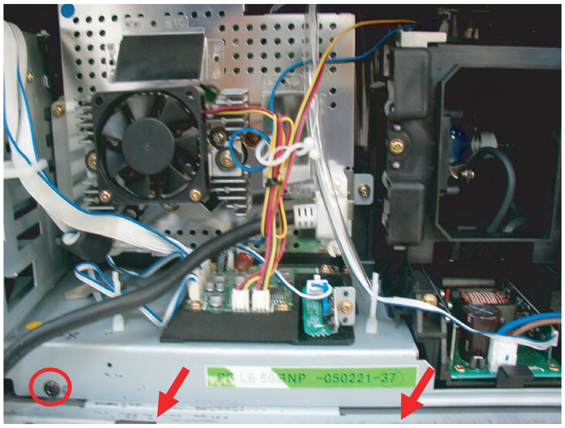
12-1-2 Separation of the Analog and Digital Board

Part Name	Description	Description Photo
Analog Board	① Seperate the cables. ⚠Notice: The 30 pin shield cable should be removed by holding the two lock ends of the cable, as failing to do so, could damage the connector.	
	① Remove the 6 screws. : PWH,B,M3,L10,ZPC(YEL),SWRCH18A	
Analog Board/ Digital Board/ Fan	① Analog, Digital Board and Fan.	
Digital Board	① Use the long-nosed pliers to remove the hex nuts. Nut-Hexagon : -,M3/8X32,ZPC(WHT),MBSBD	

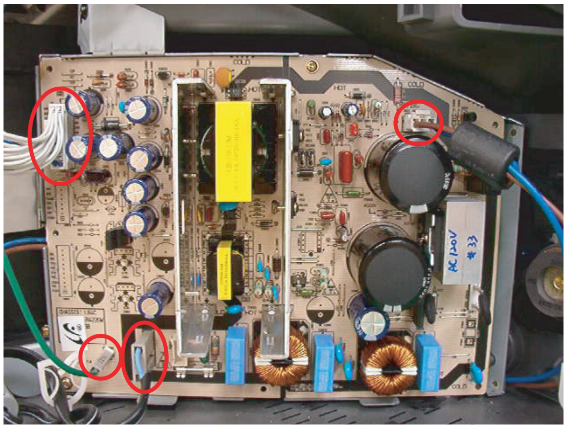
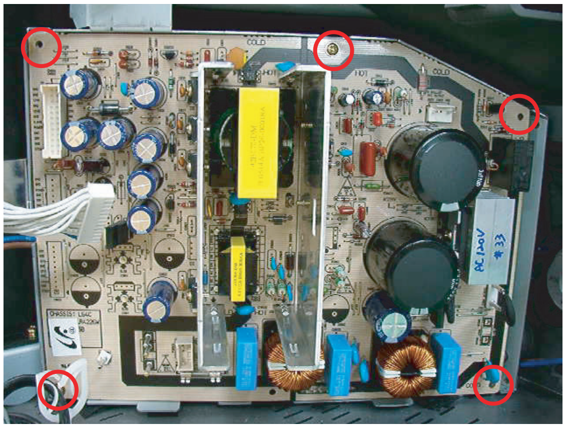
Part Name	Description	Description Photo
Digital Board	① Remove the 2 standoffs. StandOff : M3,L5,Ni PLT,SUM24L,#4-40 ⚠ Notice: The standoff may easily break through applying excessive force. Ensure that extreme caution is taken.	
	① Remove the 2 screws and 3 cables. : PWH,B,M3,L10,ZPC(YEL),SWRCH18A ⚠ Notice: The 30 pin shield cable should be removed by holding the two lock ends of the cable, as failing to do so, could damage the connector.	
	① After Removing the Top Shield Case. ⚠ Notice: Use the two lock holes on either side of the shield case when removing it.	
	① Remove the 5 screws before removing the shield case at the bottom. : PWH,B,M3,L10,ZPC(YEL),SWRCH18A	

Part Name	Description	Description Photo
Digital Board	① Digital Board.	

12-1-3 Separation of the Optical Engine

Part Name	Description	Description Photo
Optical Engine	① Remove the 3 screws to remove the bracket. : TH,B,M4.L15,BLK,SWRCH18A	
	① Remove the screw and Remove the engine by pulling it out of the cabinet. : TH,B,M4.L15,BLK,SWRCH18A ⚠ Notice: Be careful when removing the Light Engine as it may get caught up by the upper cable of the case.	

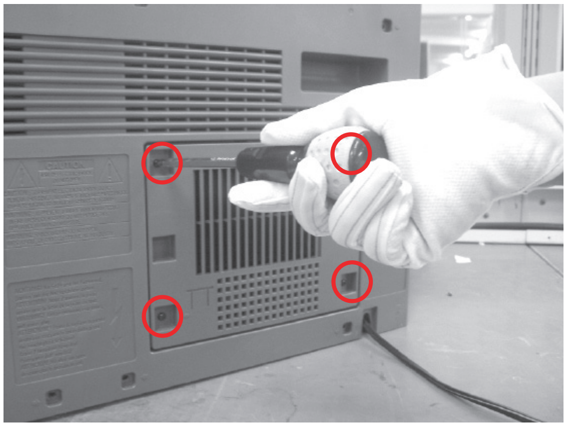
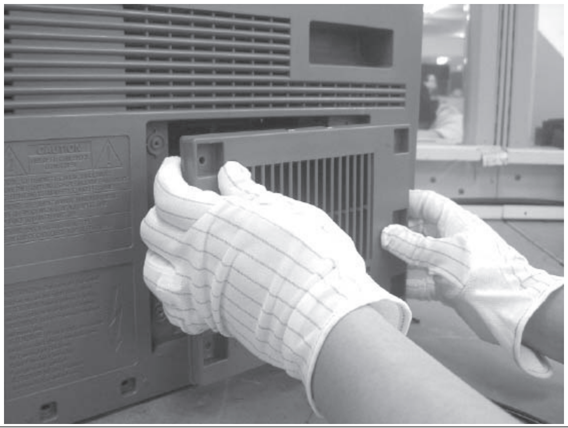
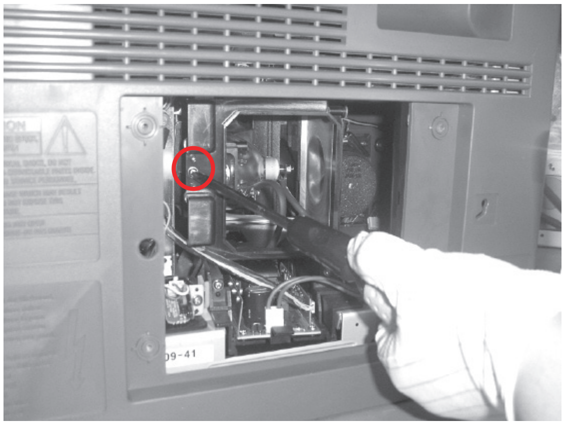
12-1-4 Separation of the Power Board

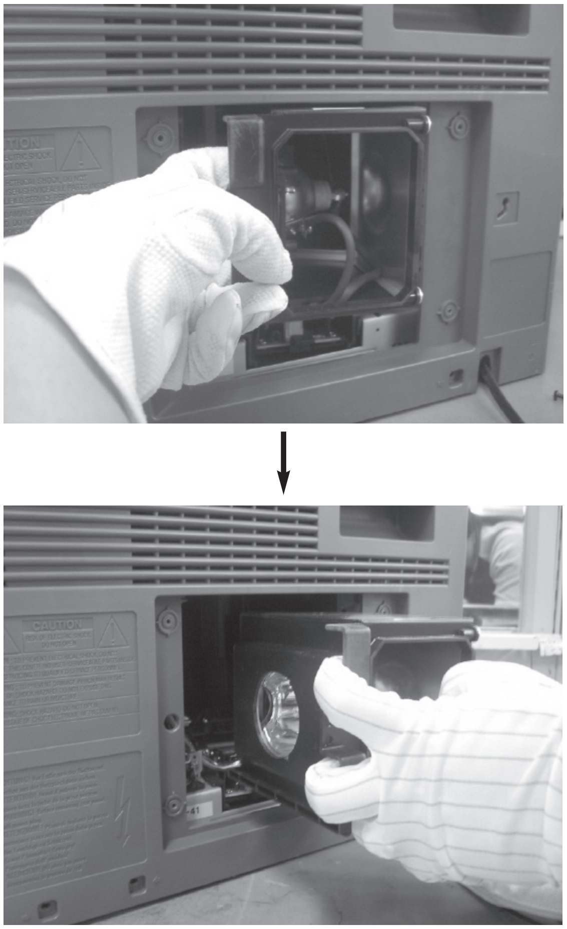
Part Name	Description	Description Photo
Power Board	① Separate the 4 cables. ② After removing 5 screws, Remove the power board carefully. ⚠ Notice: Wear gloves when handling the power board as there may be some remaining electrical charge in the capacitors. Specifically, avoid touching any part of the capacitors.	
	① After removing the 3 screws, separate the bottom power braket. : PWH,B,M3,L10,ZPC(YEL),SWRCH18A	

12-1-5 Lamp Replacement

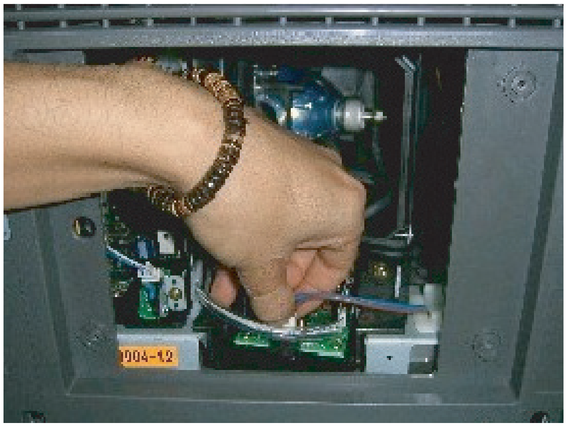
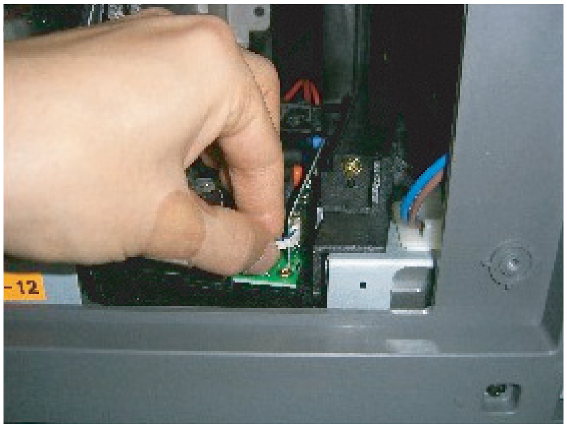
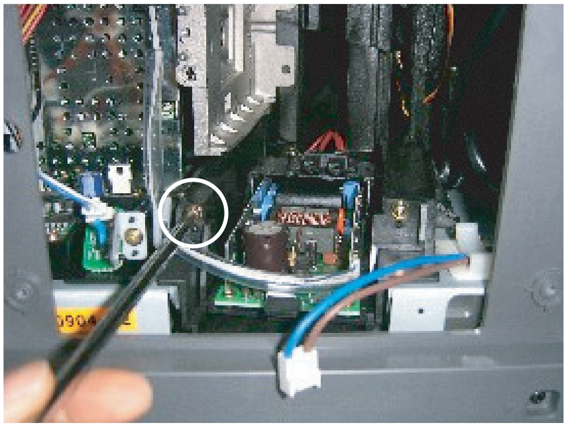
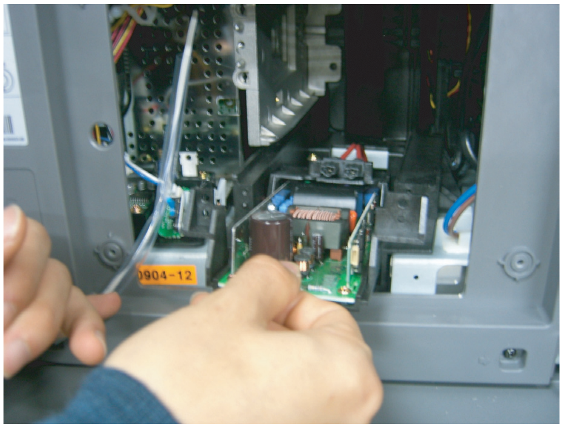
⚠ Notice

1. Replace with the correct code numbered lamp to avoid damage to the TV.
2. Turn the power off and wait for 30 minutes before replacing the lamp as it will be hot.
3. Do not touch the glass part of the lamp with your bare hands nor insert any foreign object inside the cover as it may cause poor screen quality, electric shock or fire.
4. Do not place the old lamp near flammable objects or within the reach of children.
5. Be sure to connect this TV directly to an AC wall outlet. If the TV's AC plug is connected to a cable box or other source, it will not allow for proper cool down time.

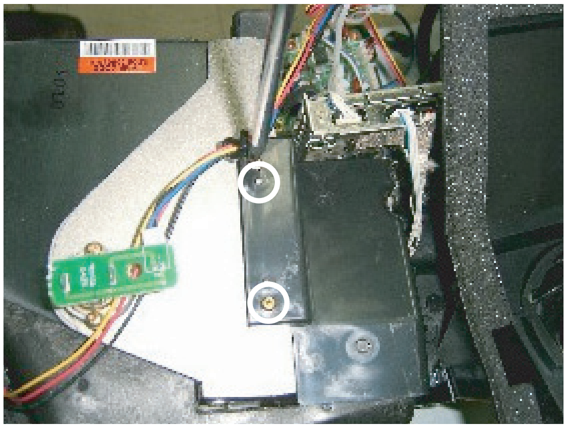
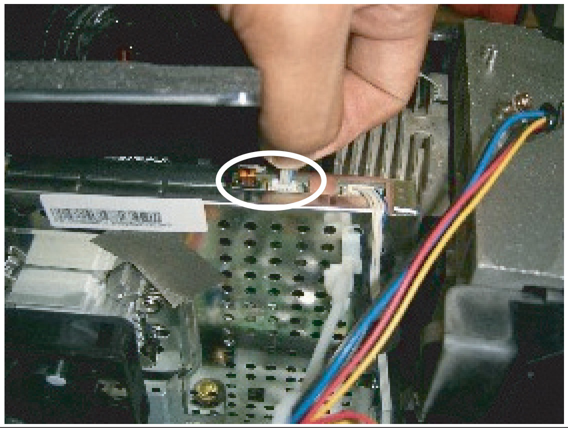
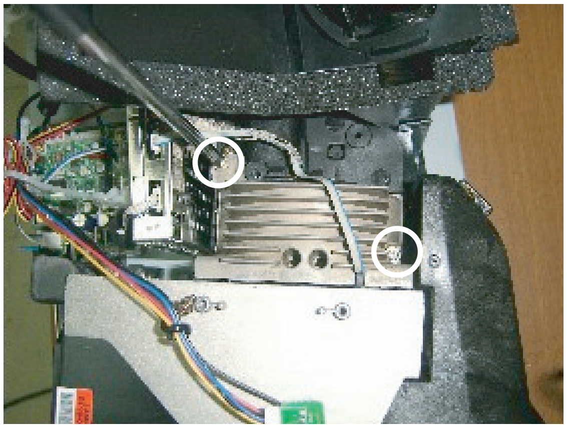
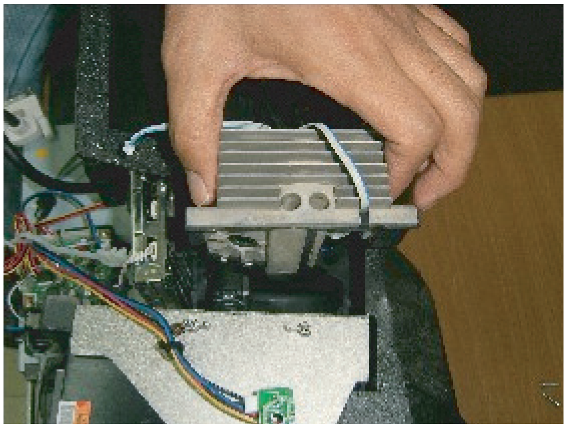
Part Name	Description	Description Photo
Lamp	① Unplug the TV, then use a screwdriver to remove the 4 screws. : WSP,PH,+,M4,L12,ZPC(YEL),SM10C	
	① Remove the Lamp cover.	
	① Remove the screw securing the Lamp by using a screwdriver. : WSP,PH,+,M4,L12,ZPC(YEL),SM10C	

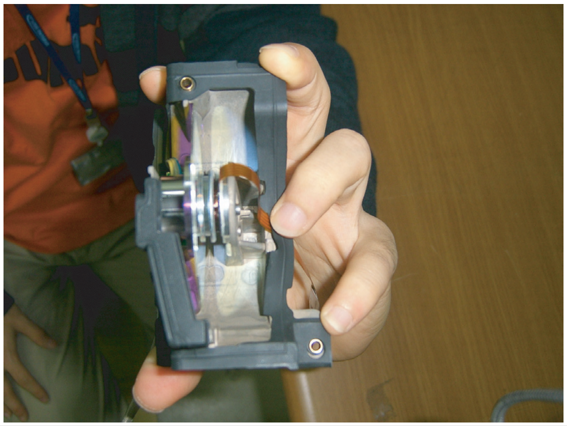
Part Name	Description	Description Photo
Lamp	① Separate the Lamp from the engine by holding the handle and pulling it out. ② To reinstall the Lamp, follow these steps in reverse order.	

12-1-6 Ballast Replacement

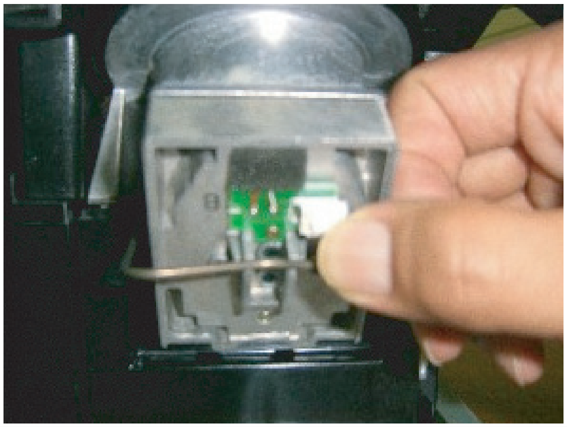
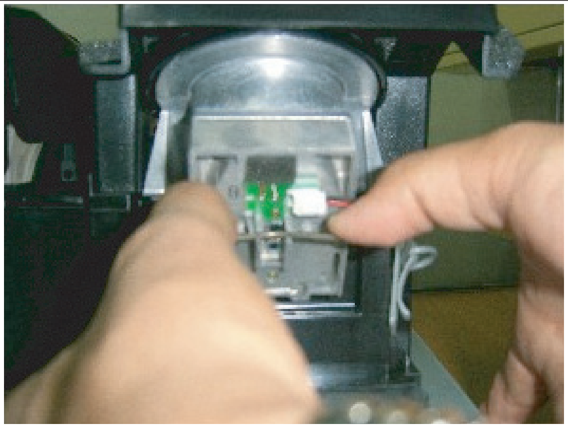
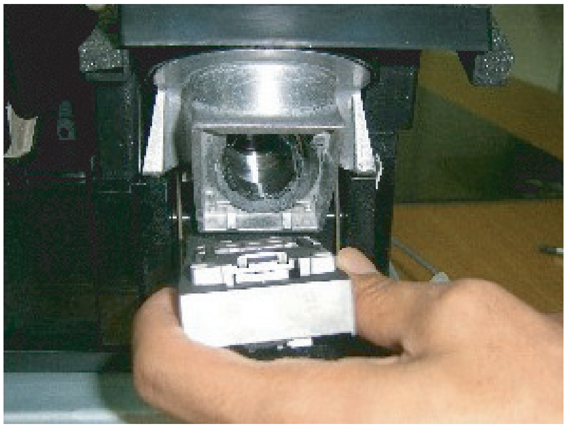
Part Name	Description	Description Photo
Ballast Board	① Remove the lamp, refering to lamp replacement.(12-8page) Remove the ballast power cable.	
	① Remove the Ballast SCI cable.	
	① Remove the two screws at the Holder Ballast. : PWH,+,B,M3,L10,ZPC(YEL),SWRCH18A,-	
	① Pull out the Ballast assembly. ② Replace it with a new one and re-assemble it in the reverse order.	

12-1-7 Color Wheel Ass'y Replacement

Part Name	Description	Description Photo
Color Wheel	① Remove 2 screws to remove the color wheel cover. (L620 doesn't have the cover color wheel.) : WSP,PH,+,M3,L8,ZPC(YEL),SW	
	① Remove two cables at the DMD Board.	
	① Remove 2 screws. : PWH,+,B,M3,L10,ZPC(YEL),SWRCH18A,-	
	① Disassemble the color wheel assembly.	

Part Name	Description	Description Photo
Color Wheel	① Replace it with a new color wheel and rubber assembly. ⚠ Notice : Never touch the color wheel. Touch only the cover assembly.	

12-1-8 Actuator(Smooth Picture) Replacement

Part Name	Description	Description Photo
Actuator	① Remove the cable at the Actuator.	
	① Push the steel spring wire to bottom of the Actuator Assy.	
	① Replace it with a new actuator.	

MEMO